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BULLETIN

OF THE

North Carolina Board of Health.

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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XVII.

APRIL, 1902.

No. 1.

Biological Examinations Once More.

Very few counties have availed themselves of our offer to deposit with the Superintendent of Health apparatus for mailing specimens in cases of suspected diphtheria and of fevers upon the request of even one physician in the county. This offer remains open. If desired we will make a deposit with the *medical* health officers of the cities and towns.

Promptness is so all-important in diphtheria that in those counties which have no mailing cases on deposit physicians should telegraph *directly to the Biologist, Mr. A. McCarthy*, for mailing cases. Application should also be made directly to him in fever cases. For sputum and water analyses, to the Secretary of the Board of Health.

The instructions must be rigidly carried out or the examination cannot be made.

Disinfection and Prevention in the Sick-room.

BY CHARLES HARRINGTON, M. D., BOSTON.

Upon the discovery that he has to deal with a case of one of the diseases commonly denominated contagious, the physician directs that the patient be isolated, and that so far as is possible all infectious matter be so treated that it is robbed of its power to work injury to others. Whether the results of his foresight will be what they should be or a positive injury is largely dependent upon the care and thoroughness with which the preventive measures are instituted and carried out, for it can hardly be denied that half-way measures or the unintelligent carrying out of proper directions, with the consequent lulling into a sense of safety, may be productive of as much harm as absolute neglect of all precautions other than those dictated to one

and another individual by a knowledge of possible personal danger.

The measures recommended for safeguarding the health of others in time of sickness comprise isolation, prevention of dissemination of infectious material, and disinfection, and these, I predict, will be enforced at no distant day by all intelligent communities not alone in the so-called contagious diseases, but in all diseases of a serious nature spread directly or indirectly by any of the excretory products of the body. Out of deference to the controversy over the right of the two words infectious and contagious to have separate and distinct meanings, I will here declare the sense in which I employ them. Infectious diseases include all those which depend upon the presence of micro-organisms in the tissues, while the contagious class of infectious diseases includes those transmissible from man to man by direct contact or close proximity. We do not commonly reckon typhoid fever, for instance, as a contagious disease, but when we read that of 206 cases of that disease investigated by Dr. Herbert Peck, 28, or 13.6 per cent., were traced to direct infection in the sick-room, we must agree with him that the danger is more common than is generally supposed, and that it has not received the attention that it deserves. Lobar pneumonia and pulmonary tuberculosis are also not included in the contagious class, and yet we are not insensible of the fact that house epidemics of the former are not uncommon, and that the latter is largely spread by overcrowding and lack of ventilation.

It is not my intention to enter here upon any discussion of the important question of the advisability of enforcing

what may be regarded as unnecessarily harsh measures for the suppression of tuberculosis, nor to touch upon the extension of supervision by public authority of the handling of the sick, but rather to consider the efficiency of preventive measures already practised.

Isolation.—The object of isolation is to remove the patient as completely as possible from all chance of acting as a menace to the health of others, whether dwelling beneath the same roof or not. In the dwellings of the poor it is usually most difficult and frequently impossible to isolate the patient in a proper manner because, primarily, of lack of space; in the homes of the well-to-do and of the rich, where plenty of room is available, it is not uncommonly the case that isolation is a mere farce because of failure on the part of the family to grasp the full importance of thoroughness, in spite of instruction by the attending physician and by the representative of the local authority. In the minds of many, isolation is complete when the patient is in a room by himself, with the door leading therefrom into the hall open or shut according to no particular rule, but according as accident has left it. To such minds the air of a sick-room is a deadly contagion to which the doorway, not the door, opposes itself as a most efficient barrier. We all have met and know the person well who says, "I was very careful not to enter the room, but talked with him from the doorway." Often the door is left open, and its place is taken by a sheet wetted occasionally by some disinfectant solution. To this thin obstacle, with more or less of open space below and at the sides, the morbid agents supposedly in the air are

presumed to attach themselves as the natural processes of ventilation set the air in motion from the room outward; or, if not this, the agent with which the sheet has been wetted, perhaps hours ago, is supposed to exert a purifying influence upon every particle of passing air. Under either of these conditions, if infective matters are floating in the air of the sick-room there is no reason why they should not be carried to all parts of the house. Even shutting the door may not accomplish all that is desired in respect of preventing efflux of air from the sick-room to other parts of the house, as can be shown by a most simple experiment. Between the bottom of the door and the threshold there is usually a fair-sized interval through which under the ordinarily existing differences of temperature, and, therefore, of density, a constant stream of air is passing inward or outward. If one holds a lighted match near this space, the flame, if the air is in motion, is inclined one way or the other according as the leakage is away from or toward the room. Sometimes the current is so strong that the match is extinguished. This may seem to be a small matter, or, indeed, insignificant, but under some circumstances it may well be thought worthy of some extra care, in which case sand-bags, such as are used on window sashes, may be found serviceable.

In those cases in which aerial infection is supposed to occur the ideal place for isolating the patient is an upper floor or an L which can be shut off entirely from the rest of the house, and ventilated thoroughly by direct communication with the outer air. Where such an area is not available, the room should be closed

as completely as possible, and the immediately adjoining rooms should be kept well aired. In the class of cases in which aerial infection under ordinary careful attention to the excretory products is not to be expected, such extensive precautionary measures are not necessary, and here the main points to be considered are the prevention of dissemination of infective material and the best method for the immediate destruction of the morbid agents as they are yielded by the patient.

Prevention of Dissemination.—It is quite unnecessary to dwell upon the precautions always observed by careful, experienced practitioners against the carriage of infective material by themselves from the sick-room, but it may not be out of place to mention the carelessness displayed by the thoughtless but enthusiastic beginner whom we all have seen leaning down upon the mattress and bedclothes, supporting himself by his hands, examining whatever attracts his attention, whether it be the body of the patient or the vessel containing the excretory products, and ever and anon stroking with his now possibly infected hands his hair and beard, or rubbing them against his own clothing or that of his neighbor, or hiding them in his pockets. Such carelessness on the part of the nurse in attendance would be contrary to her training, and on the part of the student or young practitioner is equally contrary to the instruction which he is supposed to have received. Absolute care in this particular is imperatively necessary on the part of all who visit or are in attendance in the sick-room.

In preparing the room for the reception of the patient, it should be borne in

mind that the less furniture there is present, the less there will be to undergo the process of disinfection on the termination of the sickness. Above all, the carpet should be removed at the very outset, and all upholstered furniture and draperies with it. Ordinary dusting and broom sweeping, which stir up the dust so thoroughly, should be absolutely interdicted, and cleaning and wiping with mops and cloths not wet, but well moistened with a disinfectant, should be substituted.

The used bed linen, the patient's body linen, the napkins, towels and other cloths that may become infected may be put to soak in disinfectants at once and on the spot, or may be placed within cotton bags wet with disinfectant, and conveyed at the proper time to the kettle, into which, without further handling and without opening, the whole is placed and then boiled for an hour.

The uselessness of attempting aerial disinfection in the presence of the patient is not apparently as well recognized as it should be. The placing of small amounts of chloride of lime, carbolic acid, iodine, sulpho-naphthol and other disinfectants in saucers and other open dishes, and distributing them about the room, has no other effect than the production of odors which may be an annoyance to the patient. If disinfection could be so easily accomplished, the local boards of health would be relieved of much work and very large expense. With the agents at present available for germicidal action, aerial disinfection in the presence of the patient is absolutely impossible, for they must be used in such concentration as to be quite irrespirable. But we must not overlook the disinfectant power of direct sunlight and the

beneficial effects of constant dilution of the impurities of the air by proper ventilation. The latter is materially assisted by the maintenance of an open fire when climatic conditions will not permit cross ventilation by means of open windows, and thus practical utility and the conferring of cheerfulness are combined.

The attention on the part of the nurse to hands, hair, clothing, etc., and the frequent necessity of providing separate outfits of eating utensils for the patient, and of destroying all unused portions of his meals, need no more than passing mention.

Disinfection of the Excretory Products.

—The materials which require thorough disinfection include those from the mouth, throat and nose in diphtheria and whooping-cough; from the lungs in influenza, pneumonia and pulmonary tuberculosis; from the skin in the acute exanthemata, especially during desquamation; vomitus in yellow fever and, conditionally, in other diseases; stools in cholera, dysentery, typhoid fever and tubercular conditions of the alimentary canal; and the urine in typhoid fever, and perhaps, also, in some of the exanthemata. These may be destroyed in two ways, according to circumstances. Those in not too large bulk and not too fluid, such, for example, as sputum and discharges from the nose, mouth and throat, received on cloths, may be most effectually disposed of by burning, if there is a fire immediately at hand. Bulky matters, such as stools, urine and vomitus, and objects actually or possibly infected by them, such as bed-clothing, body linen, etc., which must be purified, but not destroyed, must be brought into intimate contact with some disin-

fectant which fulfills the requirements of a good germicide, namely, that it shall kill all forms of bacteria and spores within reasonable limits of time, shall not be made inert by organic matters with which the bacteria are associated, and shall not subject the attendant to any dangerous consequences. If, in addition, it be cheap, free from disagreeable odor, and incapable of injuring cotton, linen and other textiles either by causing stains or by reducing their strength, so much the better. Where shall we find such an agent? Shall we find it in the shops put up in pints and quarts with attractive labels which reveal or not, according to the maker's fancy, the nature of the active ingredient? No, we are not likely to find it there; at least, that is my experience.

In March last Dr. Richard M. Pearce and myself reported at a meeting of the Boston Society of Medical Sciences the results of our examinations of such proprietary disinfectants as we could find in the apothecary shops of Boston, and it may not be out of place to report them again in condensed form at this time, for the brands obtained and examined include several that are held in high esteem by the profession generally. The list included the following: Marsh's Instantaneous Disinfectant, Disinfectine, Ozonos, Bromochloralum, Royal Disinfectant, Excelsior Disinfectant, Phenol Sodique, Hovey's Chloride of Zinc, Platt's Chloride, Carbolic Purifying Powder, and Solution of Chlorinated Soda. These were tested with anthrax spores, typhoid enutes, typhoid stools, diphtheritic membrane and tuberculous sputum. The mixture of material and disinfectant was intimate, and the length of time of the

contact was in each case two hours. So far as demonstrating efficiency is concerned, the results were distinctly disappointing, for but one of this list was successful in more than half of the ten tests to which each was subjected, and this one failed in three. One of them failed eight times, another nine times, and three failed every time. Not one of them was successful in sterilizing the tuberculous sputum. Those which failed in all the tests were Carbolic Purifying Powder, Royal Disinfectant, and Phenol Sodique. Those that failed eight and nine times, were, respectively, Hovey's Chloride of Zinc and Bromochloralum.

In justice to the makers of these preparations, it must be said that in no sense can any of these disinfectants be properly classed as a fraud, for chemical analysis shows that they are one and all composed of substances that are generally regarded as disinfectants, and are so recommended in many of our standard works on public health. The substances found include chloride of zinc, chloride and sulphate of aluminum, alum, permanganate of potassium, salts of lead, iron and copper, neutral tar oils, hydro-chloric and nitric acids, and others. We must, therefore, believe that they are manufactured and sold in good faith. But even so, we cannot use disinfectants that kill *almost* every time, or that kill only occasionally; they must kill *every* time, and we must therefore look elsewhere.

Shall we use corrosive sublimate? Its action on many substances with which it may come in contact, the readiness with which it is thrown out of solution made inert by matters associated with the bacteria, and its very poisonous character,

make this agent unreliable for general purposes and undesirable. Shall we use caustic lime? Lime is a good disinfectant, but it has its disadvantages. It must be used in the freshly slaked state; it must be applied in very considerable amounts; it must be very intimately mixed with the material to be disinfected, for it is not very capable of self-mixing; and after it has performed its office, it must be disposed of in such a way as to cause no trouble. How to do this in a city block may be quite a problem. One's first impulse would suggest throwing it into the water-closet, but such disposal would simply create work for the plumber, for the pipes would soon be occluded. Moreover, lime cannot be used for purifying linen and other textiles. Chlorinated lime is open to all the objections that apply to lime, and the additional one of having a very disagreeable odor. Where, then, shall we turn?

In addition to the agents already mentioned, we tried a five-per-cent. solution of carbolic acid, sulpho-naphthol, and a somewhat similar substance which I will designate solution B, both in five-per-cent. strength, and two-and-one-half-per-cent. solution of formalin, one per cent. formaldehyde. Of these the first-mentioned has for years been a favorite stand-by, objectionable to some on account of its odor, and recommended for general purposes in two, three and five-per-cent. strength. It killed the bacilli in the sputum, but was successful only once in five trials with typhoid cultures and stools and diphtheritic membrane. The sulpho-naphthol solution, which cannot be praised for its odor, was also successful with sputum, and it surpassed the carbolic solution in efficiency by scor-

ing two successes in five other trials. The remaining two preparations were uniformly successful, though it must be said that they were tried only six times each, twice with typhoid cultures, twice with typhoid stools, and once each with sputum and membrane. Our previous investigations with formaldehyde, however, seemed to us to make further tests unnecessary, and as to the solution B, it has a most disagreeable odor and is, moreover, a patented article. I will not mention its true name because I have no doubt as to one use to which this paper would be put, and because I have no desire to have even the appearance of writing "treating notices." I have no hesitation in mentioning formaldehyde, even though an enterprising concern interested in its sale makes it a practice to reprint, without permission, any articles which may serve its purpose. All formaldehyde is good, however, and, so far as I know, that sold by one is no better than that furnished by another.

Formaldehyde possesses all the qualifications of a good disinfectant, as mentioned above. In diluted form it has no unpleasant odor, it causes no injury to fabrics, it makes no stain, it is not as expensive as the cheapest of the proprietary preparations, and, most important, it kills every form of micro-organism with which it is placed in direct contact.

I do not wish to be understood as asserting that there are no other efficient disinfectants than formaldehyde, but it happens that I cannot speak of them from the stand-point of personal experience. Doubtless there may be others as good, but it would be difficult to conceive a superior. Ten years ago Frankel

demonstrated the superiority of the cresols over carbolic acid, and within the past two years a number of preparations containing them in their various isometric forms and in various combinations have been placed upon the market. They have been extensively studied, and the original conclusions of Frankel have been confirmed again and again, but the most favorable reports thus far published present no results which entitle them to admission to the class with formaldehyde. A recent publication by Seybold, who investigated and compared a number of different preparations, shows that not one of them is effective against anthrax spores, which we know are quickly destroyed by formaldehyde. It is but fair to add that solution B, which we found to be so successful with stools, membrane and sputum, contains a considerable percentage of cresols.

Besides the cresols, various other organic substances have been extensively exploited within recent times, but each one seems to fail in some one or more particulars.

Whatever the disinfectant used in the sick-room, its application must be in no niggardly amount, for in practical disinfection extravagance is a greater virtue than too strict economy. The infected objects should be submerged in the solution so that the agent shall come into contact with the entire mass. In the case of stools, urine and vomitus, at least an equal volume of the disinfectant should be added and the whole should be carefully mixed. Although in the case of formaldehyde the destruction of the organisms is accomplished in a much shorter time, it is best to continue the exposure for about two hours,

thus erring, if at all, on the side of safety. At the end of two hours, the sterilized excretory matters may be finally disposed of by way of the water-closet, and the bed-linen and similar articles sent to the wash-tub. There seems to be no particular and good reason for supplementing complete destruction of pathogenic organisms with any further process of disinfection, but if it suits one's ideas of necessity, the customary prolonged boiling can, at least, do no harm.—*Boston Medical and Surgical Journal in Sanitarian.*

Review of Diseases for February, 1902.

NINETY-ONE COUNTIES REPORTING.

Ninety-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of March the following diseases have been reported from the counties named:

MEASLES.—Alleghany: Beaufort, two cases; Bertie, many; Brunswick: Caswell, several; Cleveland, a few; Cumberland, a few; Durham, a great many; Granville, 12; Harnett, a few; Johnston, several; Mecklenburg, 10; Moore, several; New Hanover, 1; Onslow, 10; Orange, a few; Person; Randolph, a few; Richmond, in all parts; Robeson;

Rockingham; Rowan, 6; Scotland, many; Surry, 6; Swain; Union, 10; Wake, 2; Wilkes, 6—28 counties.

WHOOPING-COUGH.—Beaufort, 2; Brunswick; Caswell, several; Cleveland, a few; Davidson; Durham; Granville, 15; Harnett, a few; Hertford; Hyde, 50; Johnston, several; Mecklenburg; Moore, a few; Northampton, many; Perquimans, 12; Person, many; Randolph, a few; Rutherford, a few; Sampson, in all parts; Scotland, several; Union, 20; Wake, 2—22 counties.

SCARLET FEVER.—Alleghany; Ashe, 3; Buncombe, 2; Caswell, 3; Catawba, 2; Stanly, 6; Watauga, 6—6 counties.

DIPHTHERIA.—Ashe, 5; Bladen, 1; Craven, 1; Cumberland, a few; Lenoir, 2; New Hanover, 1; Rockingham; Rutherford, 2; Wake, 1; Wayne, 1—10 counties.

TYPHOID FEVER.—Ashe, 1; Cleveland, 2 or 3; Columbus, 2; Craven, 1; Gates, 1; Granville, 4; Greene, 1; Harnett, a few; Johnston, 1; Jones, 1; Nash, 2; Onslow, 1; Polk, 2; Randolph, 3; Rockingham; Rowan, 2; Stokes, 1; Swain, 3; Union, 12; Wake, 4; Watauga, 4—21 counties.

MALARIAL FEVER.—Bladen, Caswell, Chowan, Greene and Halifax.

MALARIAL FEVER, PERNICIOUS.—Bladen, 2.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 1; Greene, 1.

INFLUENZA.—Bladen, general; Brunswick; Caswell; Columbus; Davidson; Gates; Graham; Greene; Henderson; Hertford, general; Iredell, a few; Lincoln, general; Montgomery; New Hanover; Northampton, general; Onslow, a few:

Orange, general; Person; Robeson; Stokes; Transylvania; Yancey—22 counties.

PNEUMONIA.—Alexander; Bladen, in all parts; Burke; Caswell; Chowan; Clay, in all parts; Gates; Graham; Greene, in all parts; Guilford; Halifax; Harnett; Hyde, in all parts; Iredell, 1; Montgomery, 15; Moore, in all parts; Perquimans, 4; Person; Polk; Randolph; Sampson, in all parts; Transylvania; Union; Yancey—24 counties.

MUMPS.—Alexander, in all parts; Alleghany; Davidson; Person; Rockingham, in all parts; Scotland; Washington, in all parts; Watauga; Wayne, several; Wilkes; Yadkin—11 counties.

RHEUMATISM.—Columbus, more than usual.

VARICELLA.—Davidson; Lenoir; Pender, 1; Wilson, 1.

SMALL-POX.—Buncombe, 5; Burke, 2; Cabarrus, 9; Caldwell, 2; Cherokee, 3; Cleveland, 2; Cumberland, 1; Durham, 2; Forsyth, 3; Franklin, 4 (?); Gaston, 27; Graham, 9; Greene, 1, from Wilson—“There have been no cases in the region infected a year ago”; Henderson, 1; Iredell, a number among negroes in the eastern part; Johnston, 1; Lenoir, 1, none now (April 9); Lincoln, 5, last case dismissed March 26; Mecklenburg, 35; Nash, 5; New Hanover, 1; Richmond, 3; Rockingham, 3; Rowan, 5; Rutherford, 2; Sampson, 2; Stanly, several, all now discharged (April 8); Wilson, 69, 4 deaths—28 counties.

CHOLERA, IN HOGS.—Chowan, Hertford.

INFLUENZA, IN HORSES.—Polk.

RABIES, IN DOGS.—Iredell.

STAGGERS—Hyde.

No diseases of importance reported from Alamance, Anson, Carteret, Currituck, Davie, Duplin, Edgecombe, Haywood, McDowell, Madison, Martin, Pasquotank, Pitt, Vance and Warren.

No reports from Chatham and Mitchell.

The Rocky Mountain Industrial Sanatorium.

Before the organization of this institution was perfected we expressed our appreciation of the probable usefulness of the projected sanatorium. We have since had gratifying accounts of its progress, and we now learn that it is well advanced in its actual work. A card recently issued bears the statement that up to the time of the publication of the card, which is not dated, forty-four patients had been cared for, of whom thirteen had been wholly and eleven partly self-supporting. The existence of an institution in which such results have already been accomplished seems to us to add materially to the resources within the reach of those subjects of incipient tuberculous lung disease who lack the means of paying in full the cost of their maintenance and treatment, and we hope the day is close at hand when such resources will be vastly multiplied.

A scheme has recently been announced which promises to augment considerably the availability of this particular sanatorium for certain classes of persons, namely, the organization of what is termed the Sanatorium Press Auxiliary. The plan involves the publication of a magazine to be the organ of the sanatorium, and to furnish its readers with information as to matters pertaining to the maintenance and restoration of health. It is proposed that all the work of preparing the magazine, "except the actual handling of the issue after it comes from the press," shall be done by persons who are under treatment in the sanatorium. Such an arrangement, it will be seen, seems to carry with it the opportunity for many a poor writer, illustrator, compositor, proof-reader, or pressman to take the treatment required by his impairment of health, without a total loss of income. It will, of course, take time for this scheme to be put into

actual operation, for a special building and a complete printing plant will have to be provided. We presume that all that is expected of the magazine is that it will pay expenses, account being taken of the prestige it may serve to give the sanatorium, and it ought not to be very difficult, we should think, to hit upon similar plans that would benefit workers in various other lines than that of literature. That, in deed, seems to be the essential feature of an industrial sanatorium, and the community will expect to see it carried out as completely as possible, regard always being paid to the avoidance of unfair competition with the regular trade on the strength of having been able to obtain "lungers" labor cheap. We feel sure that the managers of the Rocky Mountain Industrial Sanatorium will not make the mistake of following any other course, and we shall look with much interest for the results of their venture.—*New York Medical Journal.*

Summary of Mortuary Reports for March, 1902.

(TWENTY-NINE TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	92,800	61,750	154,550
Aggregate deaths..	134	117	251
Representing temporary annual death rate per 1,000.....	17.3	22.6	19.6
<i>Causes of Death.</i>			
Typhoid fever.....	3	2	5
Scarlet fever.....	1	0	1
Whooping-cough..	0	1	1
Measles	0	1	1
Pneumonia.....	29	23	52
Consumption.....	21	21	42
Brain diseases.....	5	2	7
Heart diseases.....	10	9	19
Neurotic diseases...	3	1	4
Diarrheal diseases	2	1	3
All other diseases..	56	51	107
Accident	3	2	5
Suicide.....	1	0	1
Violence.....	0	3	3
	—	—	—
Deaths under five years.....	23	33	56
Still-born....	1	8	9

Mortuary Report for March, 1902.

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. B. C. Waddell.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke
Bertie	Dr. H. V. Dunstan.	Martin	Dr. W. H. Harrell.
Bladen	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....		Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. Wm. P. S. Webb.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twit y.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers
Halifax	Dr. I. E. Green.	Warren.....	Dr. A. S. Pendleton.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watanga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. Wm. Self.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.



BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D....Asheville.
HENRY W. LEWIS, M. D.....Jackson.
J. L. NICHOLSON, M. D.....Richlands.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

W. P. IVEY, M. D.....Lenoir.
FRANCIS DUFFY, M. DNew Bern.
W. H. WHITEHEAD, M. D.....Rocky Mt.
J. L. LUDLOW, C. E.....Winston.

VOL. XVII.

MAY, 1902.

No. 2.

Meeting of the Board.

The annual meeting of the Board will as usual be held at the same time and place as that of the State Medical Society, which this year will meet at Wilmington, June 10—13. The conjoint session with the Medical Society will assemble at 12 M. Wednesday 11th. It is very much to be desired that all the health officers of the State should get together at least once a year, and we sincerely hope that every superintendent of health in the State will exert himself to be present. The meeting promises to be an interesting and enjoyable one, and we feel sure that those who attend will be fully repaid for the trip.

Bovine Tuberculosis.

Since Koch's expression at the London Tuberculosis Congress of the opinion that tuberculosis in man and tuberculosis in the cow were not the same disease and,

therefore, non-transmissible from one to the other, the question has excited the greatest interest. It is still *sub judice*, however, and practical health officers have thought it wisest to continue their work on the supposition that it is transmissible from cow to man. In this connection our Biologist, Mr. McCarthy of the Department of Agriculture, has made a bacteriological test for tubercle bacilli of sixty-seven samples of milk from dairies in all parts of the State. In only one instance did he find the bacillus and it was absent from a second sample from that herd. A tuberculin test of the herd demonstrated its freedom from tuberculosis. The first sample must have been infected accidentally from outside. This speaks well for our milk supplies, but it would be more satisfactory to know that the dairy herds had stood the tuberculin test successfully. Some years ago we advised that all cities and towns for-

bid the sale of milk within their limits from infected herds, but it met the fate of much good advice even from higher sources. If the question should be settled against Koch we promise ourself to make another move on that line.

Mr. McCarthy desires us to state that he will probably take his vacation in June, in which event the biological laboratory would be closed during that month, as he has no assistant, unless one should be provided by the Board of Agriculture at its meeting on May 27th. We hope that some arrangement may be made to prevent a hiatus in the work.

The Embalmer in His Relation to Infectious Diseases.

Read before the State Funeral Directors' and Embalmers' Association, May 14, 1902,

BY RICHARD H. LEWIS, M. D.,

Secretary North Carolina Board of Health.

The prime object of the State, through its General Assembly of 1901, in creating the State Board of Embalming was the protection of the public health. This is shown by the fact that the majority of the Board were required to be members of the State Board of Health. At the same time the claims of the embalmer's calling were recognized in making two of the five members "practical embalmers." And this is as it should be, for while I would not minimize in the least the natural and praiseworthy sentiment of reverence for the dead, it still remains that the only practical value to the living of the art of embalming consists in preventing to some extent the spread of infectious and contagious diseases by the prompt destruction in the dead body of the germs which cause them. The responsibility, therefore, resting upon the

embalmer called to prepare, for transportation especially, the remains of one dead of an infectious disease is very great. And this responsibility is shared by the Board of Embalming, and through it by the State Board of Health likewise, inasmuch as the license to perform this important work is derived from them. The realization of this responsibility on the part of the two boards, of both of which I happen to be a member, accentuated by my experience in the examination of applicants for license to practice embalming, is the reason for my presenting this paper to your honorable association. From the answers given by some of the applicants to questions bearing upon disinfection it was very apparent that the instruction received by them on that subject, from some at least of the teachers of embalming, was very faulty and utterly inadequate—the process recommended amounting to no disinfection at all. Disinfection to be effective must be very thoroughly done, no detail, however small, being omitted.

While it might be claimed by the embalmer that his duties cease with the disinfection and embalming of the corpse, as a matter of fact he is in many instances practically the only one available to disinfect the room and its contents, and a thorough knowledge of the best methods is therefore justly demanded of him, even if he should refuse to do the work. But of course no embalmer of the right spirit would decline if called upon by the family to do it. Indeed, I very much hope that not only all licensed embalmers, but all undertakers as well, will fit themselves by the acquirement of the necessary knowledge and apparatus for doing this work. In a large majority of cases of death from infectious disease the

body is not embalmed, and only the work of the undertaker is in demand, but the necessity for the thorough disinfection of the remains and of the room and of all its contents remains the same. There is no reason why every undertaker should not be a skilled disinfecter, thereby adding to his own income and at the same time doing a valuable service to his community. I would be glad to see the word "Disinfector" added to the business sign of every funeral director in the State. A total outlay of less than twenty dollars would provide everything necessary in the way of apparatus and materials: a disinfector's suit (ordinary overalls, with coat well buttoned and collar turned up, trousers long and wide enough to cover the feet, and a few yards of cheese cloth to envelope the head, neck and lower part of the face, leaving only the eyes exposed, would answer very well); a Lentz formaldehyde generator (I recommend the Lentz merely because it is the cheapest of its class, and good enough); a supply of formalin, bichloride of mercury and carbolic acid; and a book of instructions. I can cordially recommend an excellent little manual entitled "Disinfection and Disinfectants," prepared by my friend, Dr. H. M. Bracken, Secretary of the State Board of Health of Minnesota, and published by the Trade Periodical Company of Chicago at a cost of \$1. The subject we have under consideration is so well treated by Dr. Bracken that I feel that I cannot do better than to quote liberally from his book—as I now proceed to do:

THE DISINFECTOR.

"When the time comes for the disinfection of the sick-room and its occupants, a most important duty is to be per-

formed in order to protect the general public, and none but trained and conscientious disinfectors should be entrusted with this duty. Unfortunately, it too often happens that when the physician's duties cease, those of the undertaker begin. It is certainly important, therefore, that he should know what to do and how to do it, for by doing the right thing he not only protects himself, but the public at large. It may be that it is necessary for him to give immediate attention to the remains of the dead. If so, his suit should be moistened and put on and his mouth and nose protected by some covering. The remains should then be properly washed with a disinfectant and injected with a reliable disinfecting fluid.

"It is much better, when possible, after death from small-pox, scarlet fever, diphtheria, etc., to use formaldehyde as an aerial disinfectant in the room where the remains are lying before doing anything with the dead body itself. When this is not possible the greater care will be necessary on the part of the undertaker for the protection of himself and others. After the remains have been cared for the room and its contents must be further disinfected by some competent person—this may be a physician, a trained nurse, a trained disinfecter or the embalmer. It is not often that a physician is willing to do this work. In many instances there is no trained nurse or disinfecter at hand. The embalmer is undoubtedly the best one in many instances to be entrusted with this work. If he undertake the task, he should be familiar with the responsibility resting upon him and should perform his duties as a disinfector conscientiously. First an aerial disinfectant should be used in the

room and the best one is undoubtedly formaldehyde. After this formaldehyde disinfection the room should be entered; all personal clothing and bedclothing should be placed in an antiseptic solution prior to washing, or placed in a pile for further treatment with formaldehyde, or burned. Carpets, furniture, wood-work, walls, floors, etc., must be disinfected as directed further on. Finally the room must be freely aired out before being again used for habitation.

SPECIAL DISINFECTION.

"1. *Of Clothing.*—All articles of clothing from the patient or his bed that are not injured by soaking in a disinfecting solution can safely be treated by boiling or steaming, and such precautions should always be taken. In fact, the use of the disinfecting solution should be looked upon as only temporary protection, to be depended upon only until such time as disinfection by boiling or steaming can be carried out.

"2. *Of Rooms.*—All windows and doors, except one for the exit of the disinfector, should be closed and sealed with strips of paper pasted over the cracks" (and the throat of the chimney should be tightly closed by packing with old grain bags, paper, or whatever will surely prevent the escape of the gas, unless the fire-place is small enough to permit its satisfactory closure by pasting a sheet of strong paper over it). "When all is in readiness to liberate the disinfecting gas, the disinfector should finally withdraw from the room, closing tightly the door or window from which he makes his exit" (sealing its cracks from the outside).

"When sulphur is used as the disinfectant the following course should be pursued: Place a large wash-tub par-

tially filled with boiling water in the centre of the room. In this tub of hot water place an iron kettle resting upon bricks or some other solid substance. In the kettle place a quantity of crushed brimstone (ten pounds for each thousand cubic feet of space) and pour over this some alcohol (about four ounces). When all is ready light the alcohol on the sulphur and withdraw from the room. The water in the tub serves a double purpose: (1) It protects from the danger of fire spreading from the burning sulphur and alcohol in the kettle. (2) It supplies moisture in the room—a necessity with sulphur disinfection.

"In the use of formaldehyde as a disinfectant it is best to choose an apparatus that can be operated from the outside of the room, the gas being conducted into the room through the key-hole or other small aperture." (The articles in the room should be so spread out and arranged as to permit the free access of the gas).

"The room should be kept closed for a period of at least five or six hours after the introduction of the disinfectant.

"Further disinfection of the contents of the room: After aerial disinfection the contents of the room or house should be divided into three groups:

"(a) Articles that can be disinfected by boiling or washing.

"(b) Articles that can be disinfected by further treatment with formaldehyde.

"(c) Articles that must be burned.

"Washable clothing, sheets, etc., should be placed for a time in a five per cent. solution of carbolic acid in water." A one per cent. solution of formaldehyde (one part of formalin to forty of water), or a one to one thousand solution of bichloride of mercury (in a wooden ves-

sel) would be equally as good). "They should then be removed and boiled for at least a half-hour.

"Certain articles, presenting a free surface and not too thick, such as carpets, blankets, curtains, etc., can be made comparatively safe by thorough disinfection with formaldehyde. Furniture that will stand washing, such as plain chairs, tables, bedsteads, etc., should be washed with a solution of corrosive sublimate in water, one part in one thousand. Upholstered furniture, mattresses, pillows, feather beds, and all articles that would be spoiled by such methods of disinfection as have already been described, should be burned.

"Further disinfection of the room: After the removal and disinfection of the contents of a room the room itself should receive careful attention. If the walls are papered the paper should be soaked off with a one to one thousand parts solution of corrosive sublimate in water, and the walls, windows, wood-work, floors, in fact, everything about the room, should be washed with a similar solution. It is a good plan to repaint all woodwork." (Walls of a suitable character should be white-washed, or calcomined).

"After everything has been thoroughly disinfected, still further precaution should be taken by allowing the most complete ventilation possible of the room. Articles of clothing or furniture should be placed in the open air and exposed to the sunlight, if possible, for several days.

"3. *Of the Dead.*—This is a very important duty; otherwise disease may be spread far and wide. The remains of all those who die of an infectious disease should be thoroughly injected with a re-

liable embalming fluid; all external orifices should be securely closed with absorbent cotton; and finally, the entire surface of the body, including the hair, should be thoroughly cleansed with a reliable disinfectant, such as a solution of corrosive sublimate (one in one thousand parts of water), or of carbolic acid (one in twenty parts of water). With such precautions taken the shipment of bodies may be permissible as governed by the rules given elsewhere.

"The importance of giving such careful attention to the remains of all who die of an infectious disease cannot be too strongly emphasized.

"Often there is no wish to remove the remains at the time from the place of death to some remote point, and the burial is made without thorough disinfection of the body. At some later period, for some reason or other, the wish for removal may arise, but then it will be too late, for the remains of one who has died of dangerous infectious disease and buried without proper disinfection immediately following death, cannot be safely disinterred.

"It may be well, while dealing with this subject, to state that very few of the so-called disinfecting embalming fluids on the market will stand the bacteriological test. It is a difficult but not impossible task to find an embalming fluid that has both good disinfecting and cosmetic qualities.

"Another important fact to bear in mind in the use of embalming fluids is the necessity of thorough injection. The common tendency is to use an insufficient quantity of fluid. Enough can be injected only under pressure. Such pressure should be constant, as secured from a compressed air apparatus or the fountain

syringe or irrigator, placed with its bottom at least six feet above the point of insertion for the injecting canula or needle. The bulb syringe can never be a reliable instrument for use in embalming."

I do not advise disinfection by sulphur fumigation, for while it may be effective, and is effective if sufficient sulphur is burned in the presence of abundant moisture, it is not altogether so certain as formaldehyde, and besides has the serious objection of bleaching colored fabrics, as carpets, curtains, woolen clothing, upholstered furniture, etc., all of which can be successfully treated with formaldehyde at the same time the room is disinfected.

Disinfection with formaldehyde can be accomplished by other methods than the one indicated, as, for example, the Chicago method of spraying sheets suspended in the room with formalin, or the generation of the gas by the burning of wood alcohol in various apparatus, as the Kuhn generator, as well as in other ways. On the whole, however, the method recommended, that is, by the use of generators of the type of the Lentz, the Mulford, the Kny-Scheerer, the Parke, Davis & Co. and the West, all of which can be operated from the outside under constant supervision, is in my judgment the best.

I beg to express the hope—and for the Board of Health and the Board of Embalming, the wish—that the methods above set forth, which practically cover the subject of disinfection in its relation to the embalmer and the undertaker, be strictly observed by all members of your calling, especially by all licensed embalmers. The Board of Embalming in granting license guarantees

to the people of our own State and of other States the competency of its licentiates, and it should therefore be assured not only of the possession on their part of the requisite knowledge of the subject, but also of the disposition to apply it honestly and conscientiously. Of course if it should appear that any licensed embalmer fails to meet these requirements in his practice it would become the painful duty of the Board to refuse to renew his license.

The responsibility resting upon the embalmer and undertaker in relation to infectious diseases is very great, but I am confident that it is only necessary to call attention to the grave importance of the matter to insure the conscientious performance of the duty.

Tent Life for Consumptives.

As soon as the weather will permit and proper locations can be selected there will be pitched near Boston the first of a number of camps for consumptives. This camp (and each succeeding camp will be like it) will consist of ten-piano-box tents, arranged in a circle with an open-air fire in the center, and surrounded by a duck wall eight feet high. Each of these tents will be a consumptive's home, a consumptive will sleep there, even through the coldest weather, with no other protection than plenty of felt blankets, felt sleeping boots, and a two-gallon jug of hot water.

The tents are made of twelve-ounce duck, are only seven feet high, with four-foot walls, boxed in around the bottom a foot from the ground. They will be lined with weather paper. The flaps will open toward the fire, the ten tents making a little circle about a clean gravel

court. In the duck wall which surrounds the whole will be a single entrance. The people who live there will wear one heavy suit night and day. They will each of them take one quick soapless bath a week, and will eat three good hearty meals a day, with coffee in the morning and hot chocolate any time of the day or night. Their bill of fare will include milk, eggs, vegetables, bread and butter, and meat—chiefly beef, mutton, or pork, broiled on spits before the fire or roasted in the embers, or broiled down into soup.

This open life is expected to cure them of their disease. The method is the result of experiments made last winter in a tent on Huntington avenue by a scientist whose name has not yet been divulged. This gentleman pitched his tent during the coldest part of a January which was more than usually cold, and stayed in there until the early spring, engrossed in his experiments, but finally seeing patients and announcing that he wanted as many consumptives as possible to prove the truth of his theories.

He wants the consumptives still. His theory has been pretty well tested now, but he still wants as many consumptives as will come to him—the worse their condition the better—to put them in his settlements.

"The life there," he said, "quickly fortifies a man's bodily powers: it envolutes, then evolutes man back toward ancestral or wild life. The skin, nails, and hair toughen and thicken; pulmonary catarrh stops; hemorrhages cease. A civilized man loses his sensitiveness; his emotions change. He becomes insensitive and fearless. All his energy goes to nutrition; his intellectual

centers are dormant. All his powers are concentrated in building and repair. He falls asleep at twilight and wakes at dawn, ready to eat. Incidental disaster affects him little; he changes from a hothouse plant to an oak. The fear and panic customary to a crowd of consumptives no longer affect him, and thus the greatest danger of hospitalism is avoided.

"Baron Larry Nap, chief surgeon and adviser, made this same observation in his Egyptian and Russian campaigns: that incipient consumptives make the best soldiers. They have Spartan courage, and army life, properly regulated, will cure them. A regiment of consumptives would be no mean enemy."

The camps are merely for the purpose of scientific investigation, and if a patient cannot afford the expenses he will be taken free. The camps will all be near the city, where scientific physicians are within call.—*Boston Transcript*, in *Iowa Health Bulletin*.

Review of Diseases for April, 1902.

EIGHTY-SIX COUNTIES REPORTING.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

MEASLES.—Anson, several cases; Beaufort, epidemic; Bladen, 4; Brunswick, many; Cabarrus, 4; Caswell, 50; Chatham, many; Currituck, several; Durham, many; Forsyth, many; Granville, 25; Guilford, 2; Harnett, a few; Johnston, many; Jones, several; Macon, a few; Mecklenburg; Moore, several; Randolph, a few; Rockingham, many; Rowan, 5; Scotland, several; Swain, 15; Wake, 14; Wayne, 1; Wilkes, 3; Yadkin, 2—27 counties.

WHAUPOING-COUGH.—Alamance, 30; Beaufort, 10; Bertie, many; Cabarrus, 6; Caswell, 50; Dare, 5; Davidson, several; Durham, several; Granville, 8; Harnett, a few; Hertford, 25; Hyde, 25; Mecklenburg; Montgomery, 25; Moore, a few; Northampton, epidemic; Pasquotank, 2; Pitt, in all parts; Randolph, general; Sampson, a great many; Scotland, a few; Stokes, 1; Union, 16—23 counties.

SCARLET FEVER.—Catawba, 7; Guilford, 1; Mecklenburg; New Hanover, 1; Rowan, 3; Watauga, 10—6 counties.

DIPHTHERIA.—Bladen, 1; Catawba, 1; Lenoir, 1; Mecklenburg; New Hanover, 1.

TYPHOID FEVER.—Chatham, many; Cleveland, 3; Columbus, 1; Gates, 1; Graham, 4; Greene, 1; Guilford, 1; Harnett, a few; Montgomery, 2; Moore, 5; Nash, 1; New Hanover, 1; Rockingham, a few; Rowan, 3; Scotland, 3; Stanly, 1; Vance, a few; Wake, 2; Watauga, 6—19 counties.

MALARIAL FEVER.—Bertie, Bladen, Caswell, Chowan, Cumberland, Currituck, Dare, Gates, Greene, Hyde, Jones, Martin, Onslow, Person, Sampson, Union, Vance and Wayne—18 counties.

MALARIAL FEVER, PERNICIOUS.—Dare, 2; Jones, 1.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 1; Gates, 1; Greene, 1; Martin, 1; Union, 5.

BOWEL DISEASES.—Bladen, Catawba, Gaston, Onslow and Pasquotank.

INFLUENZA.—Brunswick; Caswell, in nearly all parts; Dare, several; Gates; Pender, a few; Perquimans, a few; Randolph, in all parts; Stokes; Wake, in all parts; Wilkes; Yadkin—11 counties.

PNEUMONIA.—Alexander, in all parts; Anson; Bladen; Chatham, many; Currituck, 1; Franklin, a few; Gaston, 1; Gates, 3; Harnett, many; Haywood, several; Lenoir; Perquimans, a few; Pitt, in all parts; Randolph, in all parts; Vance, in all parts; Wake, in all parts; Wayne, Yadkin—18 counties.

MUMPS.—Davidson; Granville; Iredell, in all parts; McDowell, a few; Onslow, a few; Person; Rockingham; Stanly; Watauga; Wilkes—10 counties.

VARICELLO.—Carteret, many; Sampson, in nearly all parts.

SMALL-POX.—Beaufort, 1; Burke, 1; Cabarrus, 6; Caldwell, 1; Caswell, 3; Catawba, 1; Davie, 1; Forsyth, 6; Gaston, several; Guilford, 1; Iredell, 8; Lincoln, 1; McDowell, 3; Mecklenburg, 56; Nash, 7; Rockingham, 28; Rowan, 8; Rutherford, 2; Union, 1; Wake, 2; Wilson, 11; Yadkin, 6—22 counties.

CHOLERA, IN CHICKENS.—Clay, Gates and Onslow.

CHOLERA, IN HOGS.—Chowan.

STAGGERS, IN HORSES.—Currituck and Hyde.

No diseases reported from Ashe, Buncombe, Clay, Duplin, Edgecombe, Graham, Henderson, Jackson, Madison, Mitchell, Polk, Transylvania and Warren.

No reports received from Alleghany, Cherokee, Cleveland, Halifax, Orange, Richmond, Surry and Washington.

Summary of Mortuary Reports for April, 1902.

(TWENTY-SEVEN TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	89,800	60,850	150,650
Aggregate deaths..	103	97	200
Representing temporary annual death rate per 1,000	13.8	19.1	15.9

Causes of Death.

Malarial fever.....	0	1	1
Whooping-cough...	2	1	3
Measles	3	1	4
Pneumonia.....	14	18	32
Consumption	18	16	34
Brain diseases.....	7	1	8
Heart diseases.....	6	9	15
Neurotic diseases...	1	4	5
Diarrhoeal diseases	3	2	5
All other diseases..	45	39	84
Accident	3	5	8
Suicide.....	1	0	1

Deaths under five years.....	26	27	53
Still-born.....	8	13	21

MORTUARY REPORT FOR APRIL, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.		Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	Deaths under five years.	Stillborn.
		RACES.	By Races.																				
Asheville { W. 10,000 Dr. C. V. Reynolds. } C. 4,800	14,800	21.6 20.0	21.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	1	1	1
Charlotte { W. 11,000 Dr. F. O. Hawley. } C. 7,200	18,200	14.2 23.6	17.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	1	1	1
Durham { W. 8,000 Dr. N. M. Johnson. } C. 5,000	13,000	21.0 26.4	23.1	.....	.....	.....	.....	.....	.....	5	1	.....	.....	6	.....	.....	.....	.....	14	2	4	6	1
Fayetteville { W. 2,500 Dr. John D. MacRae. } C. 2,300	4,800	9.6 20.9	15.0	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	2	6	6	6	1
Goldsboro { W. 3,400 Geo. E. Hood, Mayor. } C. 2,600	6,000	3.5 41.6	11.9	.....	.....	.....	.....	.....	.....	2	4	.....	.....	1	.....	.....	.....	.....	1	10	1	2	1
Greensboro { W. 6,100 Jno. S. Michaux, C. C. } C. 4,000	10,100	19.7 30.0	23.8	.....	.....	.....	.....	.....	.....	1	3	.....	5	.....	.....	10	20	2	1	3	2	2	
Henderson { W. 2,100 Dr. F. R. Harris. } C. 1,700	3,800	0.0 21.2	9.5	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	.....	.....	.....	.....	0	3	3	1	1
Laurinburg { W. 900 Dr. A. W. Hamer. } C. 600	1,500	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0
Lenoir { W. 1,200 Dr. A. A. Kent. } C. 300	1,500	20.0 0.0	16.0	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....	.....	.....	.....	0	2	1	1	1
Lexington { W. 800 J. H. Moyer, Mayor. } C. 500	1,300	30.0 0.0	18.5	.....	.....	1	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	0	2	1	1	1
Marion { W. 800 Dr. B. A. Cheek. } C. 350	1,150	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0
Monroe { W. 1,850 Dr. J. M. Blair. } C. 600	2,450	15.0 0.0	9.8	.....	.....	1	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	2	0	2	0	0
Mt. Olive { W. 400 Dr. C. S. Maxwell. } C. 300	700	60.0 0.0	34.3	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	.....	.....	.....	.....	2	1	1	0	0
Oxford { W. 1,200 Dr. S. D. Booth. } C. 1,100	2,300	10.0 10.9	10.4	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	1	2	1	1	1
Raleigh { W. 8,000 T. P. Sale, Clerk B. H. } C. 5,800	13,800	12.0 29.0	19.1	.....	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1	22	1
Reidsville { W. 2,900 Jas. T. Smith, Cy. Cl. } C. 1,300	4,200	16.5 9.2	14.3	.....	.....	.....	.....	.....	.....	1	.....	3	.....	3	.....	4	5	5	1	1	1	1	1
Rocky Mount { W. 1,600 Dr. G. L. Wimberley, Jr. } C. 1,500	3,100	0.0 0.0	0.0	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	0	0	0	0	0
Salem { W. 3,300 F. E. Keehn, Supt. H. } C. 350	3,650	18.2 34.3	19.7	.....	.....	1	1	1	1	1	1	1	1	2	.....	.....	5	6	2	2	1	1	
Salisbury { W. 3,000 Dr. W. W. McKenzie. } C. 2,500	6,400	18.2 14.4	15.2	.....	.....	1	.....	1	.....	1	2	1	1	1	1	5	8	2	2	1	1	1	
Southport { W. 900 Dr. D. I. Watson. } C. 500	1,400	25.7 0.0	16.5	.....	.....	1	.....	1	.....	1	.....	1	1	1	1	1	2	1	2	0	0	0	0
Tarboro { W. 2,000 Dr. L. L. Staton. } C. 500	2,500	0.0 24.0	4.8	.....	.....	1	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1
Wadesboro { W. 1,000 Dr. J. H. Bennett. } C. 700	1,700	0.0 17.1	7.1	.....	.....	1	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1
Washington { W. 2,100 Dr. Jno. G. Blount. } C. 2,600	5,000	15.0 23.1	17.2	.....	.....	2	2	2	2	2	2	2	2	2	1	1	3	8	2	2	1	1	1
Waynesville { W. 1,000 T. Stringfield, Mayor. } C. 300	1,300	12.0 40.0	18.5	.....	.....	1	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	2	1	1	1
Weldon { W. 700 J. T. Goode, Mayor. } C. 750	1,450	0.0 16.0	8.2	.....	.....	1	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1
Wilmington { W. 10,000 Dr. Chas. T. Harper. } C. 11,000	21,000	15.6 19.6	17.7	.....	.....	1	1	1	1	1	1	1	1	1	1	1	13	31	5	1	7	6	1
Wilson { W. 1,850 Dr. W. S. Anderson. } C. 1,700	3,550	19.5 35.3	27.0	.....	.....	1	.....	2	.....	2	2	2	2	2	1	1	3	8	2	2	1	1	1

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. B. C. Waddell.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing- house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. Wm. P. S. Webb.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. A. S. Pendleton.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watauga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough Typhoid Fever

Measles ----- **Typhus Fever** -----

Diphtheria ----- Yellow Fever-----

Scarlet Fever ----- **Cholera** -----

Pernicious Malarial Fever----- Smallpox-----

Hemorrhagic Malarial Fever..... Cerebro-spinal Meningitis.....

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: _____

M. D.

190 N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D...Asheville.
HENRY W. LEWIS, M. D.....Jackson.
J. L. NICHOLSON, M. D.....Richlands.

W. P. IVEY, M. D.....Lenoir.
FRANCIS DUFFY, M. DNew Bern.
W. H. WHITEHEAD, M. D.....Rocky Mt.
J. L. LUDLOW, C. E.....Winston.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XVII.

JUNE, 1902.

No. 3.

Annual Meeting of the State Board of Health.

The annual meeting of the Board was held at Wrightsville on June 11th, Drs. Thomas, Ivey, Duffy, Whitehead Nicholson and R. H. Lewis being present.

The rules and regulations for the transportation of the dead, as amended by the Conference of State and Provincial Boards of Health of North America at its meeting at Niagara Falls in September, 1901, were adopted, and the Secretary was ordered to have the same printed for distribution to the transportation companies and to the embalmers and undertakers of the State.

The short term of Dr. R. H. Lewis as a member of the State Board of Embalming having expired, he was re-elected for the full term, as the law requires.

Committees of two were appointed to complete the inspection of the public institutions of the State.

A general inspection of all the public water supplies of the State by the Engineer of the Board was ordered.

The Secretary of the committee appointed to revise the Instructions for Quarantine and Disinfection submitted their report, which was approved and adopted.

Tuberculosis was discussed and suggestions made with a view to a more active fight against that dread disease.

The Treasurer submitted his report, which was audited and found correct.

The conjoint session with the State Medical Society was held as usual on Wednesday of the meeting, the 12th.

President Thomas on taking the chair made a short but excellent address, devoting himself chiefly to the best method of abating one of the greatest menaces to the public health—the incompetent physician. In order to eliminate the personal element, he suggested that all in-

formation necessary to conviction of illegal practitioners be furnished by those coming into its possession to the Secretary of the Board, who would then in his official capacity bring the matter to the attention of the Solicitor of the district in which the violator of the law resides. Subsequently this request was made, and we trust it will bring forth fruit. There are comparatively few illegal practitioners in the State, but one is too many.

The Secretary of the Board submitted his annual report, which will be found below.

Dr. Tait Butler, the new State Veterinarian, being present by invitation of the Board, was offered the privilege of the floor and invited to participate in the discussions. He made a very favorable impression by an excellent talk on bovine tuberculosis, and called upon the medical men present to use their influence to build up a public opinion in support of its regulation by the State, rightly holding that legislation would be of no avail unless backed up by public opinion.

ANNUAL REPORT OF THE SECRETARY OF THE
NORTH CAROLINA BOARD OF HEALTH.

Read at the Conjoint Session of the Board with the State Medical Society at Wrightsville, N. C., January 12, 1902.

The work of the Board during the past year has been chiefly routine in character, but none the less useful on that account, we hope. Since the more important items have been previously published in the BULLETIN, which is mailed every month to every physician in the State, and since a full report in detail for the years 1901-1902 will be made to the next Legislature, which meets early in January, 1903, it is unnecessary and inad-

visable to take up the limited time at our disposal by a report of that character on this occasion. I will therefore confine myself to a statement in a general way of the more important work. This is mainly included under sewerage investigations, inspections of some of the State's institutions, bacteriological work, the organization of the State Board of Embalming and efforts to control smallpox.

Sewerage.—At the request of the city Board of Health of Wilmington an investigation of the method of sewerage that city proposed by the Wilmington Sewer Company was made by Colonel Shaffer, the Engineer of the Board at that time, and recommendations made by the committee appointed by the President of the Board. The result was a modification of the plans in accordance with the suggestions made.

In compliance with an act of the Legislature referring the settlement of a controversy between the municipal authorities of Blowing Rock and the two leading hotels of that summer resort a committee of the Board investigated and settled the matter.

Inspections of State Institutions.—The State Hospital and the School for the Deaf and Dumb at Morganton were inspected and found in excellent condition. By request of the proprietors, the private sanatorium known as Broadoaks, more especially its water supply, was also made. The other State institutions will receive their usual biennial inspection before the meeting of the next General Assembly.

Biological Laboratory.—As stated in my last report at Durham the State Board of Agriculture at its meeting in December, 1900, at our request agreed to

have certain bacteriological work done for the Board in its laboratory. At first this was limited to examinations of suspected drinking waters, but was later extended so as to include specimens from diphtheria cases, blood in doubtful cases of fever, and sputum. This generous action on the part of the Board of Agriculture, I am sorry to say, has not been appreciated, or at least availed of, by the profession, as was hoped and expected. According to the report of the Biologist of the Department, Mr. McCarthy, the total number of biological analyses made in the past six months was 141—35 pathological, mostly of sputum, 48 of drinking water and 58 of milk—a total of 83, or an average of only 14 a month. When we consider the fact that there are about 1,500 physicians in the State, it will be seen that less than one per cent. take advantage of the valuable privilege offered. The Board of Agriculture can hardly be expected to do this work for us indefinitely, and the time will come when we must appeal to the Legislature for an appropriation for it. The way to obtain this is to show conclusively the value and importance to the people of the work, and the extent to which the laboratory is patronized would be an index of the opinion of the medical profession as to its value. It is to be hoped, therefore, that our physicians will avail themselves more freely of these opportunities. It is interesting to note that only one sample of milk was found infected with the tubercle bacillus and further investigation showed that to have been accidental.

Board of Embalming.—The General Assembly of 1901 passed an act creating the State Board of Embalming, consisting of five (5) members, three from the State Board of Health and two practical

embalmers, all to be elected by the Board of Health. At the last annual meeting, in compliance with the act, Drs. Battle, Duffy and R. H. Lewis of the Board and Messrs. J. M. Harry and H. W. Simpson, practical embalmers, were elected. The Board of Embalming thus created organized on July 5, 1901, by electing Mr. J. W. Harry of Charlotte, President, and Mr. H. W. Simpson, of New Bern, Secretary and Treasurer. Since that time three meetings have been held for examination of applicants for license to practise embalming and sixty-three licenses have been granted. This action put us abreast on this line of the most progressive and advanced boards of health of the country. The importance of having this work in cases of infectious diseases done by one competent not only to embalm but to properly disinfect the room and effects is self-evident. In order to impress upon the undertakers of the State the importance of thorough disinfection and to set forth clearly for their benefit the best methods, I read a paper entitled "The Embalmer in his Relation to Infectious Diseases" at the annual meeting last month of the State Funeral Directors and Embalmers' Association, which seemed to be appreciated, and which I hope will be productive of good. It was printed in the BULLETIN for May, as you may have seen.

Small-pox.—As was anticipated and predicted, small-pox has continued to prevail in the State. Owing to the fact that no small-pox was reported from Wilson county from May 1, 1901, to January 1, 1902, the Superintendent of Health considering the eruptive disease widely prevalent in the county to be chicken-pox, it is impossible to give an accurate statement for the whole State.

Omitting Wilson county for the present, and confining ourselves to the other ninety-six counties, the totals are as follows: Number of counties infected (including Wilson), 55; number of cases, whites 616, colored 1,196, total 1,812; number of deaths, whites 21 or 3.41 per cent., colored 27 or 2.28 per cent., total 48 or 2.59 per cent. The figures for the preceding year are: Cases, white 530, colored 1,415, total 1,945; deaths, white 15 or 2.83 per cent., colored 23 or 1.63 per cent., total 36 or 1.95 per cent. From this it appears that the death-rate during the past year has been slightly higher than the year before, but not so high as the year preceding that, when it was 4.78 for the whites, 1.44 for the colored.

The chief difficulty in the management of the disease has been the same as heretofore—mistaken diagnosis as chicken-pox. This was the trouble in Wilson county, the authorities not admitting it to be small-pox until an expert from the Marine Hospital Service, kindly sent at our request by Surgeon-General Wyman early in January, declared it to be unquestionably small-pox; and representatives from contiguous counties at a meeting held at Rocky Mount on the 14th of January threatened to quarantine against Wilson unless the precautions proper against small-pox were immediately taken by that county. From that time the disease was reported to me regularly as small-pox, the total number of cases, not classified as to color, being 333, with 6 deaths from January 1st to May 1. Prior to this period the Chairman of the County Sanitary Committee of Wilson told me in a personal interview that in his opinion there had been up to the time

of our conversation 1,500 cases. So it is safe to say that, including the 333 cases reported after January 1st, there were during the past small-pox year between 1,500 and 2,000 cases in that one county. Adding this to the 1,817 cases reported from the rest of the State would make between 3,000 and 3,500 cases, the largest number ever occurring in the State in the same length of time.

Three counties, Camden, Pamlico and Tyrrell, failed to comply with the law requiring the election of a superintendent of health. An outbreak of small-pox in Camden county last month, however, demonstrated the utter helplessness of the authorities to control the disease, and this fact, strongly re-enforced by the excellent work of Inspector Tayloe, brought about a prompt election of a superintendent by the County Sanitary Committee. So that now there are only two counties in the State that are without that important official. We hope to secure action in these two counties before we meet again.

The two Small-pox Inspectors, Drs. Tayloe and Harrill, have rendered good service, though their services, owing to previous experience with the disease on the part of the local authorities, have been less in demand than heretofore. Their reports are appended, as is a tabulated statement by counties of small-pox in the State from May 1, 1901, to May 1, 1902.

While nothing especially brilliant has been accomplished during the past year, the work of the Board, I think we can claim, is more appreciated than ever before.

Review of Diseases for May, 1902.**EIGHTY-NINE COUNTIES REPORTING.**

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of May the following diseases have been reported from the counties named:

MEASLES.—Anson, many cases; Beaufort, 10; Bladen, 50; Brunswick, many; Burke, 3; Cabarrus, 12; Camden, 6; Caswell, several; Chatham, many; Cumberland, a few; Durham, a few; Forsyth, a great many; Granville, 8; Guilford, 7; Harnett, many; Johnston, many; Jones, epidemic; McDowell, 1; Onslow, 6; Person, a few; Randolph, a few; Rockingham, many; Scotland, a few; Swain, 2; Union, 10; Wake, 15; Wilkes, Yadkin, 1—28 counties.

WHOOPING-COUGH.—Alamance, 35; Beaufort, 3; Bladen, 12; Cabarrus, 21; Caswell, several; Craven, 8; Cumberland, a few; Davidson; Durham, a few; Forsyth, a few; Granville, 4; Guilford, 3; Harnett, many; Hertford, 9; Johnston, many; Northampton, many; Robeson, several; Sampson, many; Swain, 6; Union, 6; Wake, 1; Washington, 8—22 counties.

SCARLET FEVER.—Davidson, 1; Davie, 6; Haywood, 1; Rowan, 1.

DIPHTHERIA.—New Hanover, 3.

TYPHOID FEVER.—Ashe, 1; Bladen, 3;

Caldwell, 1; Catawba, 1; Chatham, 1; Chowan, 1; Clay, 3; Cleveland, a few; Craven, 2; Graham, 1; Granville, 4; Harnett, a few; Johnston, 3; McDowell, 1; Nash, 4; New Hanover, 3; Northampton, 3; Onslow, 1; Pasquotank, 1; Richmond, 2; Rockingham, a few; Rowan, 3; Rutherford, 3; Stanly, 2; Stokes, 2; Vance, a few; Wake, 3; Washington, 2; Wayne, several—29 counties.

MALARIAL FEVER.—Bertie, Caswell, in nearly all parts; Columbus, a few; Currituck; Franklin; Gates; Greene, in all parts; Hertford; Lenoir; Onslow; Pender, a few; Sampson, in nearly all parts; Wayne—13 counties.

MALARIAL FEVER, PERNICIOUS.—Hertford, 2.

MALARIAL FEVER, HEMORRHAGIC.—Franklin, 1.

BOWEL DISEASES.—Alamance, Anson, Bladen, general; Brunswick, in most parts; Burke, a few; Camden; Catawba; Cleveland; Columbus, a few; Currituck; Davidson, general; Gaston; Gates, general; Granville; Greene; Guilford; Hertford; Fredell, general; Jackson, a few; Lenoir, many; Lincoln; Martin; New Hanover, Northampton, general; Onslow; Orange, many; Pasquotank; Pender; Pitt; Randolph; Richmond, general; Robeson; Sampson, in nearly all parts; Scotland, Union, Vance, Wake, general; Warren; Washington, general; Wayne—40 counties.

MUMPS.—Cabarrus, in all parts; Caswell, in nearly all parts; Cleveland, a few; Johnston; Person, a few; Watauga—6 counties.

ROSEOLA.—Henderson, many cases.

SMALL-POX.—Beaufort, 1; Cabarrus, 2; Camden, 4; Carteret, 1; Catawba, 20, “confined to negroes near Catawba”—no new cases reported for several days—

have vaccinated all exposed persons—it is a light form"; Forsyth, 6; Gaston, 50 or 60, "at McAdenville—compulsory vaccination has been rigidly carried out and there is no apprehension of a further outbreak"; Haywood, 10; Johnston, 3; Lincoln, 1; Mecklenburg, 68; New Hanover, 1; Rockingham, 29; Rowan, 8; Stanly, 3; Surry, 20, "on May 11 I went to Mt. Airy and found five cases which were quarantined—since then 15 more cases have developed, all in mild form except 1 complicated with pneumonia, 5 white, 15 colored—I got Dr. J. M. Hollingsworth to take charge of them and he has vaccinated 40 in the families concerned—the authorities have rendered all the aid possible"; Union, 25; Wilson, 4; Yadkin, 2—19 counties.

CHOLERA, IN CHICKENS.—Orange.

CHOLERA, IN HOGS.—Chowan, Hertford and Robeson.

An epidemic of some kind among horses in Pasquotank.

No diseases of importance reported from Alexander, Buncombe, Dare, Duplin, Edgecombe, Hyde, Macon, Madison, Perquimans, Polk, Transylvania and Yancey.

No reports received from Alleghany, Cherokee, Halifax, Mitchell, Montgomery and Moore.

Summary of Mortuary Reports for May, 1902.

(TWENTY-EIGHT TOWNS).

Aggregate population.....	White.	Col'd.	Total.
91,160	62,740	153,900	
Aggregate deaths..	147	164	311
Representing temporary annual death rate per 1,000	19.3	31.4	24.2

Causes of Death.

Typhoid fever	1	1	2
Malarial fever.....	5	3	8
Diphtheria.....	1	0	1
Whooping-cough...	3	0	3
Measles	1	0	1
Pneumonia.....	7	20	27
Consumption	15	19	34
Brain diseases.....	3	4	7
Heart diseases.....	8	14	22
Neurotic diseases...	8	6	14
Diarrhœal diseases	26	23	49
All other diseases..	65	70	135
Accident	3	2	5
Suicide.....	1	0	1
Violence	0	2	2
	147	164	311
Deaths under five years.....	55	68	123
Still-born.....	8	12	20

MORTUARY REPORT FOR MAY, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.		RACES. By Races. Total.	By Races. Total.	By Races. Total.	Typhoid Fever, Scarlet Fever, Malaria Fever, Diphtheria, Whooping-cough, Measles, Pneumonia, Consumption, Brain Diseases, Heart Diseases, Neurotic Diseases, Diarrhoeal Diseases, All Other Diseases, Accident, Suicide, Violence, Deaths under five years, Still-born.	TOTAL DEATHS.
Asheville{ W. 10,000 9.6								
Dr. C. V. Reynolds. { C. 4,800 35.0								
Charlotte{ W. 11,000 25.1								
Dr. F. O. Hawley. { C. 7,200 36.7								
Durham{ W. 8,000 21.0								
Dr. N. M. Johnson. { C. 5,000 13,000 28.8								
Edenton{ W. 960 0.0								
Dr. T. J. Hoskins. { C. 2,090 3,050 0.0								
Fayetteville{ W. 2,500 0.0								
Dr. John D. MacRae. { C. 2,300 4,800 31.3								
Goldsboro{ W. 3,400 28.2								
Geo. E. Hood, Mayor. { C. 2,500 6,000 36.9								
Greensboro{ W. 6,100 5.9								
Jno. S. Michaux, C. C. { C. 4,000 10,100 45.0								
Henderson{ W. 2,100 51.4								
Dr. F. R. Harris. { C. 1,700 3,800 20.0								
Laurinburg{ W. 800 39.0								
Dr. A. W. Hamer. { C. 600 1,400 40.0								
Lenoir{ W. 1,200 0.0								
Dr. A. A. Kent. { C. 300 1,500 0.0								
Lexington{ W. 800 15.0								
J. H. Moyer, Mayor. { C. 500 1,300 0.0								
Marion{ W. 800 0.0								
Dr. B. A. Cheek. { C. 350 1,150 34.4								
Monroe{ W. 1,850 6.5								
Dr. J. M. Blair. { C. 600 2,450 4.9								
Mt. Olive{ W. 400 0.0								
Dr. C. S. Maxwell. { C. 300 700 40.0								
Oxford{ W. 1,200 0.0								
Dr. S. D. Booth. { C. 1,100 2,300 13.6								
Raleigh{ W. 8,000 25.5								
T. P. Sale, Clerk B. H. { C. 5,800 13,800 37.2								
Reidsville{ W. 2,900 8.3								
Jas. T. Smith, Cy. Cl. { C. 1,300 4,200 18.4								
Rockingham{ W. 1,500 48.0								
Dr. Wm. P. S. Webb. { C. 500 2,000 0.0								
Rocky Mount{ W. 1,600 0.0								
Dr. G. L. Wimberley, Jr. { C. 1,500 3,100 0.0								
Salem{ W. 3,300 18.2								
F. E. Keehn, Supt. H. I. { C. 350 3,650 0.0								
Salisbury{ W. 3,900 21.5								
Dr. W. W. McKenzie. { C. 2,500 6,400 24.0								
Southport{ W. 900 13.3								
Dr. D. I. Watson. { C. 500 1,400 48.0								
Tarboro{ W. 2,000 0.0								
Dr. L. L. Staton. { C. 500 2,500 24.0								
Washington{ W. 2,400 15.0								
Dr. Jno. G. Blount. { C. 2,600 5,000 18.5								
Waynesville{ W. 1,000 36.0								
T. Stringfield, Mayor. { C. 300 1,300 0.0								
Weldon{ W. 700 17.1								
J. T. Gooch, Mayor. { C. 750 1,450 48.0								
Wilmington{ W. 10,000 31.2								
Dr. Chas. T. Harper. { C. 11,000 21,000 44.7								
Wilson{ W. 1,850 32.4								
Dr. W. S. Anderson. { C. 1,700 3,550 42.3								

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

SMALL-POX IN NORTH CAROLINA, MAY 1, 1901, TO MAY 1, 1902.

COUNTIES.	NUMBER OF CASES.			NUMBER OF DEATHS.		
	White.	Colored.	Total.	White.	Colored.	Total.
Alamance		8	8			
Beaufort	1		1	1		1
Buncombe	1	98	99		2	2
Burke	3		3			
Cabarrus	34	83	117		3	4
Caldwell		3	3			
Carteret	1		1			
Caswell		7	7		1	1
Catawba		1	1			
Cherokee	60	4	64	1		1
Cleveland	2	6	8	1		1
Cumberland	1	35	36		1	1
Davie		5	5			
Duplin		45	45		2	2
Durham	15	20	35			
Edgecombe	6	1	7			
Forsyth	26	75	101	1		1
Franklin		4	4			
Gaston	75	25	100	1	2	3
Graham	9		9			
Granville		4	4			
Greene	6	25	31		2	2
Guilford	11	14	25	1		1
Halifax		1	1			
Harnett	9	16	25	1		1
Haywood		4	8			
Henderson	32	41	73		2	2
Iredell	6	27	33			
Johnston	13	7	20			
Lenoir		4	4			
Lincoln	10		10			
McDowell	3	5	8			
Madison	10		10			
Martin	11		11			
Mecklenburg	73	300	373	2	3	5
Nash	27	16	43	2		2
New Hanover		1	1			
Orange	22	5	27			
Person	9	40	49		1	1
Polk		4	7			
Randolph		1	26			
Richmond		1	5			
Rockingham	11	36	47		1	1
Rowan	25	30	55	2	4	6
Rutherford	25	12	37			
Sampson	35	10	45	6		6
Stanly	7	40	47			
Stokes			3			
Surry			1			
Swain	3		3			
Union	1	17	18			
Wake	4	21	25		1	1
Wayne	15	60	75	1	2	3
*Wilson			333			6
Yadkin		6	6			
Total (in 55 counties)	616	1,196	1,812	21	27	48
Death rate, per cent.				3.41	2.28	2.59

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. B. C. Waddell.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing- house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. Wm. P. S. Webb.
Currituck	Dr. II. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. A. S. Pendleton.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watauga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.

S. WESTRAY BATTLE, M. D....Asheville.

HENRY W. LEWIS, M. D.....Jackson.

J. L. NICHOLSON, M. D.....Richlands.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

W. P. IVEY, M. D.....Lenoir.

FRANCIS DUFFY, M. DNew Bern.

W. H. WHITEHEAD, M. D.....Rocky Mt.

J. L. LUDLOW, C. E.....Winston.

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JULY, 1902.

No. 4.

Biological Analyses of Water and Pathological Material.

There have been so many irregularities and imperfections in the taking and shipping of samples for biological analyses that we feel constrained to publish again the instructions, which we beg our medical readers to consider carefully and observe *exactly*. The following is the new circular of information issued from the laboratory of the Department of Agriculture:

The value of biological analyses in determining obscure diagnoses, and in testing the purity of water supplies is so generally recognized by the medical profession everywhere that all progressive States now make some provision for having such work done at the public cost. The North Carolina Board of Health, by courtesy of the State Department of Agriculture, has been able to offer such assistance to the medical men of the State since 1901.

The sanitary work done in the Department's Biological Laboratory is of two classes, viz.:

1. Analyses of drinking waters.
2. Examination of pathological matter.

In consideration of the extreme delicacy of the biological and microscopic test and the ease with which samples become contaminated, it is absolutely necessary to formulate certain rules for governing the taking and sending of samples. The State Board of Health has published such rules, and a copy of the rules is always sent out with every sampling outfit. As the analytical work is very expensive and laborious, and the results to be of real value must assume that all necessary precautions have been taken, it is only reasonable to expect that physicians shall perform their part. As a matter of fact many of the samples sent to the laboratory by physicians and health officers are taken with little or no regard to the rules. Especially is

this the case with blood samples. Samples of sputum are frequently received in cases sent out for diphtheritic exudates. The rules of the Board of Health and of the U. S. Postoffice prescribe that sputum samples must invariably be sent only in double mailing cases. The sending of such dangerous matter in single cases renders the sender subject to a heavy fine by the postal laws. The Board of Health has provided proper cases for such samples, and there is no expense for sending them otherwise.

In regard to samples of drinking waters, the laboratory frequently receives samples put up in old medicine bottles and corked with second-hand corks. Such samples are wholly worthless for a biological analysis, and must therefore be discarded.

The following is a synopsis of the rules governing the biological analyses done by the Board of Health. They should be carefully read and kept in mind by every physician who expects to send such samples:

To secure a biological analysis of water by the State, make application to the Secretary of State Board of Health at Raleigh. The State Board of Health has adopted the following rule: "The person desiring a bacteriological examination of drinking water must first apply to the Superintendent of Health of his county or the *medical* health officer of his city or town if it have one, or to his family physician. This officer or physician will, if in his opinion there be just cause to suspect said drinking water as the source of disease, write to the Secretary of the State Board of Health, giving his reasons for such suspicion. Should these be satisfactory to the latter, he will approve the application and transmit the

same to the State Biologist, who will forward this permit to said officer or physician. The sample must be taken and packed by a *physician*, in strict accordance with the given directions." *No deviation from this rule.*

Samples for biological analysis *must in every case* be sent in bottles sterilized and prepared in the laboratory of the Department of Agriculture. No sample sent without previous application for permit, bottle and descriptive blank, as specified in paragraph No. 1, will be accepted or analyzed.

A limited number of samples of pathological material will be examined for physicians by the Biologist. Application for such examination must be endorsed by the Secretary of the State Board of Health. Application from country physicians and County Superintendents of Health will receive preference. *Work of this kind cannot be done for hospitals or sanitaria.* Pathological material will not be examined unless there is clinical reasons for suspecting the presence of one of the microbes named below.

All samples must be taken by a physician, according to the directions furnished and must be fully described and certified on form sent.

All transportation charges on samples and containers must be paid by the sender.

For the present only following-named material can be accepted to be examined for the microbes specified:

- (a) Milk and sputum to be examined for *Bacillus Tuberculosis*.
- (b) Diphtheritic exudates to be examined for *Bacillus diphtheriae*.
- (c) Blood to be tested for *Bacillus Typhosus*.

(d) Blood to be examined for Plasmodia of malaria and *B. anthracis*.

In cases of suspected diphtheria or fevers of doubtful character, application may be made direct to the State Biologist, Mr. Gerald McCarthy, Department of Agriculture, Raleigh; or in those counties having sampling outfits and instruction blanks on deposit, such samples (diphtheria and blood) may be sent without previous application.

Malaria and Typhoid.

It has been conclusively demonstrated that the poison known as malaria is not "bad air" but a blood parasite, the *plasmodium malariae* which feeds upon and develops in the red corpuscles of the blood, and that it is conveyed by a particular genus of mosquitoes named *Anopheles*—and probably in no other way. This demonstration shows malarial fever to be a preventable disease. A person can reside in the most malarious region with perfect impunity if he can protect himself against the sting of the variety of mosquitoes mentioned which have previously stung another person having the fever, thereby infecting themselves with the germs of the disease. This can be done in three ways—by destroying the mosquitoes and preventing their breeding, by protection against them by screens, etc., and by preventing their stinging persons sick of malarial fever. Either one of these methods if properly carried out would be effective, but as perfection cannot be hoped for, all three should be resorted to.

The next two months, August and September, constitute the season of the year in which malarial fevers, and malarial fevers of the most malignant type—æstivo-autumnal or the old-fashioned "bil-

ions fever," pernicious and hemorrhagic—are most prevalent with us. It is therefore in order for our people living in malarious sections to begin at once and prosecute unremittingly a vigorous warfare against mosquitoes.

The typhoid fever season is already well begun, and we beg to call the attention of our readers to the fact that the spread of this disease can surely be prevented. The source of the poison is in the discharges of a patient. It is conveyed by drinking water or flies infected therewith. The simplest and surest way therefore to destroy the germs is to immediately and thoroughly disinfect all discharges from the bowels and kidneys, and then bury them not less than 150 feet from any well or spring. As the germs are also found in the discharges of convalescents and in the preliminary stages of the disease surface privies should always be carefully looked after.

As bearing on the above, we take pleasure in printing below the excellent "Farmers' Bulletin No. 155" of the U. S. Department of Agriculture, by Dr. L. O. Howard, Entomologist of the Department, omitting, much to our regret, the illustrations for lack of the plates; and the very interesting speculations of Dr. King on the effect of light in the production of malarial fever.

HOW INSECTS AFFECT HEALTH IN RURAL DISTRICTS

INTRODUCTION.

In very many parts of the country the farming population has to contend with at least two diseases which are preventable. These are malaria and typhoid fever. Both of these diseases are transferred or may be transferred by insects—malaria by certain mosquitoes and typhoid fever by the common house fly, or certain other flies.

CITY AND COUNTRY CONDITIONS COMPARED.

While it is true that both malaria and typhoid prevail in large cities, it is none the less true that they may with a certain degree of accuracy be termed country diseases, that is to say, rather specifically, diseases of the farm and the small village. Malaria, in fact, has been called by medical men a country disease. Swampy regions do not occur in cities, or, at all events, only in the suburbs, whereas they occur commonly in the country. Open streams with side pools of still water are found only in the country, and it is in such small, still pools, and in more or less permanent but small accumulations of water, that the malarial mosquito breeds. This mosquito, therefore, does not accommodate itself well to city conditions, but it is found almost everywhere in the country, except possibly in very dry localities and at certain high elevations. Even in dry regions it sometimes abounds, especially where there is a definite rainy season, or where the land is irrigated. Irrigating ditches are prolific breeding places for mosquitoes, including the malarial kind. Malaria in cities, as a rule, is found only with persons who have contracted it in the country or in the suburbs, although with some cities having marshy places on their borders a malarial belt may exist, the extent of which depends upon the direction and force of the prevailing summer breezes, especially the night breezes. For example, such a condition as this accounts for the prevalence of malaria in certain portions of the city of Washington before the reclamation of the Potomac Flats, which lie to the south of the city, the prevailing night breezes of the summer being southern.

SOURCES OF TYPHOID FEVER.

Cities well supplied with water from a reservoir, especially a filter reservoir, which possesses a modern sewage system, and in which water-closets are universal, derive typhoid fever only from the following sources: Contaminated country milk, the return of people in the autumn from the less sanitary country, and lack of care in the disposal of the discharges of persons who have contracted typhoid from either of the first two sources.

In the country, however, conditions are different. Each country house or each house in a small village has its own water supply, usually in the shape of a well; the cattle get water from the streams; there are no water-closets, and excreta are deposited in the open or in box privies; drainage from these box privies or from the open deposits containing virulent typhoid germs may enter the streams, be carried for some distance and be taken into the stomachs of cattle all along the course of the stream, or the germs may be carried by underground drainage directly into the wells from which drinking water is gained; or, exposed as these box privies or open deposits are, certain flies may alight upon the excrement and carry the germs directly to the food supply of the houses; or certain flies may breed in this excrement and fly, fairly reeking with disease-bearing filth, to the kitchens and tables of nearby houses. When we consider that active typhoid germs may be given out for some time by persons who have not developed typhoid fever sufficiently so that it may be recognized, and that they may also be given out for some time after the patients have been apparently cured of the disease, it is perfectly obvious that in the country

the lack of care with which excreta are deposited readily accounts for outbreaks of typhoid fever from any of the causes mentioned.

METHODS OF PROTECTION FROM TYPHOID AND MALARIA.

Of course it will be said that the entire water supply of a city may become contaminated at or immediately above its reservoir supply. This contamination is from country sources and might be obviated either in a general manner by the establishment of a reservoir filtering plant, or in a special manner by individual householders by the constant and thorough use of house filters. In cities possessing a common water supply and modern sanitary plumbing there is no excuse for the presence of typhoid in the household. Even the city water must be filtered, which can be done by the use of any of the cheap filters now on the market [We beg to enter our protest against the statement that "any of the cheap filters now on the market" will purify water infected with the germs of typhoid fever. On the contrary it has been shown that the ordinary domestic filter, while taking out mechanical impurities, is a positive breeder of germs—is worse than useless. There are only two or three such filters that will stop bacteria even for a short time, and they are not cheap.—ED.]; the milk which is drunk by children must be sterilized, and the excreta of persons returning to the city, after contracting typhoid fever in the country, must be disinfected with the utmost care. These three measures, systematically followed, will result in the abolition of typhoid fever within the city boundaries.

So much for cities. In the country the matter is somewhat more difficult, and immunity from malaria and typhoid de-

pends largely upon the individual householder. Such immunity may be obtained, but only as a result of intelligent care.

Let us briefly consider what the farmer or the resident of a small village must do to bring about protection.

MALARIA.

The old idea that malaria is caused by breathing the miasma of swamps has been exploded. Malaria is contracted only through the bites of mosquitoes of the genus *Anopheles*. The cause of human malaria is the growth and development within the red blood cells of a very minute parasitic organism belonging to the lowest group of the animal kingdom—the group Protozoa, or one-celled animals, which includes those minute creatures known as Amebas and others, which live in the water or in damp sands or moss, or inside the bodies of other animals as parasites. This parasite reproduces in the body by subdividing, eventually bursting the red blood cells and entering the blood serum as a mass of spores. Broadly speaking, when the blood of a human being is sucked into the stomach of a mosquito of the genus *Anopheles* the malaria parasite undergoes a sexual development and gives birth to a large number of minute, spindle-shaped cells, known as blasts, which enter the salivary glands of the insect and are ejected with the poison into the system of the next person bitten by the mosquito. If this person happens to be nonmalarious the malaria has thus entered his system and malarial symptoms result.

So far as present knowledge goes, this is the only way in which people become malarious. In order to avoid this result it is necessary to avoid the bites of malarial mosquitoes, and it therefore be-

comes important to know the differences between the malarial and the more harmless mosquitoes, and the conditions under which the malarial forms breed.

Malaria-bearing mosquitoes.—There are very many mosquitoes which have not been yet proven to carry any disease. In fact, the majority of mosquitoes are supposed to be harmless except for the irritation caused by their punctures. The commonest of all forms belong to the genus *Culex*. These include the mosquitoes most commonly breeding in rain-water barrels and chance transient pools. It will be noticed that *Culex* has clear wings, while *Anopheles* has wings which are more or less spotted. It will be noticed further that while the palpi (which are the projections either side of the beak) are very short in *Culex*, they are long—nearly as long as the beak—in *Anopheles*. Further, it has been observed that when *Culex* is resting upon a wall it appears more or less humpbacked, that is to say, the head and the beak are not in the same plane with the body and wings, but project at an angle toward the surface of the wall, the body and wings being parallel with the wall. With *Anopheles*, however, the head and beak are in practically the same plane with the body, and the body itself is usually placed at an angle with the wall, and especially when resting upon a horizontal wall, such as the ceiling of a room, the body of *Anopheles* is at a very great angle with the surface. We have in this country three species of the malarial genus *Anopheles*, namely *Anopheles maculipennis*, *Anopheles punctipennis*, and *Anopheles crucians*. The two former are found nearly all over the country, but the last is a more Southern species, although it has been found as

far north as the south shore of Long Island.

As to the early stages, the eggs of *Anopheles* may at once be distinguished from the eggs of *Culex*, those of *Culex* being laid in the raft-shaped mass on end and those of *Anopheles* being laid singly upon the surface of the water, always lying upon their sides. The larvae of *Culex*, commonly known as wiggler, are familiar to almost every one, and are the common wiggler found in horse troughs and rain-water barrels, which wiggle around in the water, returning at frequent intervals to the surface to breathe, and at the surface hanging with simply the tip of the tail extruding, the rest of the body being held below the surface at a great angle. What we have called the "tail" is simply the breathing tube, which, with the common *Culex* wiggler, is long and more or less pointed. With the malarial mosquitoes, however, the wiggler, or larva, is of somewhat different shape, and when resting at the surface, which it does most of the time, it lies with its body parallel with the surface, and not hanging down, as does the *Culex* wiggler.

Breeding places of malaria-bearing mosquitoes.—The breeding places of the harmless mosquitoes are more numerous and more varied than the breeding places of the malarial mosquitoes. *Anopheles*, however, are found under many divers conditions. They are found, as stated, in still side pools of small streams, in the swampy pools at the margins of larger ponds, in stagnant water in ditches, in the beds of old canals, in the still water at the sides of springs, and occasionally, though rarely, in old horse troughs. They are perhaps more frequently found in such situations as described when a

certain amount of green scum has accumulated, and it is upon the spores of the water plants constituting this green scum, as well as upon other very small objects floating on the surface of the water, that they principally feed.

Measures to be taken to prevent malaria.—To prevent malaria mosquitoes from breeding in a given vicinity, one should be prepared to recognize their larvæ when they are seen, and to distinguish them from other mosquito larvæ; then a most thorough search for all possible breeding places should be made within a radius of a mile. This distance is mentioned, since it seems rather definitely proven that the Anopheles mosquitoes do not fly for great distances. After the breeding places are found they should be drained or filled in with earth, or they shoud be rendered uninhabitable to the Anopheles larvæ by covering the surface of the water with a thin film of kerosene oil, or by introducing certain fish which feed upon the larvæ, such as top minnows, sticklebacks, young sunfish, or goldfish.

Pending the result of such exterminating measures, all houses in malarious localities should be carefully screened to prevent the entrance of mosquitoes. After screening, thorough search should be made in the house for mosquitoes which have already gained entrance. Such as are found roosting upon the walls shoud be captured by placing an inverted vial over them, or they may be stupefied by burning a small amount of pyrethrum powder upon a tin-dish cover. Persons wishing to avoid malaria should not sit out of doors exposed to the bites of mosquitos at night. Persons having malaria should be carefully screened at night to prevent them from being bitten

by mosquitoes, which, becoming thus infected, would become potential carriers of the disease. Such patients, systematically treated with quinine, the dose being always given at the beginning of the chill, will soon be rid of the disease. The time of the dose is important, and the reasons for the time have been abundantly proven by the study of the life of the parasite in the blood cells.

All of this advice is given only after abundant demonstration of the efficacy of the methods. These measures have been followed with success in the most malarious localities in the world, and with this knowledge there is no good reason why an individual should contract malaria in his own home, no matter how much malaria exists around him.

Of course, however, there may be occasions where it is almost impossible to avoid contracting the disease. For example, last October the writer was waiting for a night train one evening in a small Western town where there were irrigating ditches near the station. In these ditches malarial mosquitoes were breeding profusely, and the insects abounded in the station waiting room and on the platform. Nothing but a gauze covering would have kept them away, and several bites were inflicted on the hands and neck. Fortunately, none of the individuals could have bitten a malarial patient, as the disease was not transmitted.

TYPHOID FEVER.

It is not the writer's intention to go further into the causation of this disease than he has already done in his introductory remarks. He wishes, however, to point out as forcibly as possible the danger of its spread by insects and the methods of avoiding this danger.

House flies and breeding places.—The principal insect agent in this spread is the common house fly, and this insect is especially abundant in country houses in the vicinity of stables in which horses are kept. The reason for this is that the preferred food of the larvæ of house flies is horse manure. House flies breed in incredible numbers in a manure pile largely derived from horses. Twelve hundred house flies, and perhaps more, will issue from a pound of horse manure.

Ten days completes a generation of house flies in the summer. The number of eggs laid by each female fly averages 120. Thus, under favorable conditions, the offspring of a single overwintering house fly may in the course of a summer reach a figure almost beyond belief. With an uncared-for pile of horse manure in the vicinity of a house, therefore, flies are sure to swarm. Their number practically will be limited only by breeding opportunities. They are attracted to, and will lay their eggs in, human excrement. Under favorable conditions they will breed, to some extent, in this excrement. They swarm in kitchens and dining rooms where food supplies are exposed. They are found commonly in box privies, which sometimes are not distant from the kitchens and dining rooms. Therefore with an abundance of flies, with a box privy near by, or with excremental deposits in the neighborhood, and with a perhaps unsuspected or not yet fully developed case of typhoid in the immediate neighborhood, there is no reason why, through the agency of contaminated flies alighting upon food supplies, the disease should not be spread to healthy individuals. That it is so spread is not to be questioned. That under the usual conditions of the army concentration camps in the summer of

1898 it was so spread to a shocking extent has been demonstrated by the army typhoid fever commission. And the remedy is plain. It consists of two courses of procedure: (1) Proper care of excreta; (2) The destruction of flies.

Measures to be taken to prevent typhoid fever.—On many farms where intelligent people live the old-fashioned box privy has been done away with, and there has been substituted for it some form of earth closet. Where a good earth closet is in operation, and the inhabitants of a farm appreciate the importance of using no other, and where in case of illness the excreta of patients are promptly disinfected, flies breeding in the neighborhood will have practically no opportunity to become contaminated with typhoid germs, except in the unlikely event (which future investigation may possibly show) that other animals than man are subject to this disease. The proper maintenance of an earth closet will add somewhat to the work of a farm, but this extra work will pay in the long run. While it is true that a box inclosure, if its contents are covered with lime every three or four days, will answer the purpose, a much better plan would be to use a large metal vessel, the surface of the contents being covered with earth after each operation, and which may be removed, emptied and replaced. Care should, of course, be taken to empty the contents of the vessel in a pit constructed in some well-chosen spot, from which the drainage would not be dangerous.

With regard to the abolition of flies, the best measures will again naturally involve some trouble and expense. In a thickly settled country it will become necessary for some such measure to be generally adopted in order to be perfectly effective, but in an isolated farmhouse

the number of house flies may be greatly reduced by individual work. All horse manure accumulating in stables or barns should be collected, if not daily, at least once a week, and should be placed in either a pit or vault or in a screened inclosure like a closet at the side or end of the stable. This closet should have an outside door from which horse manure can be shoveled when it is needed for manuring purposes. Each day's or each week's accumulations, after they are shoveled into the closet or pit, should be sprinkled over the surface with chloride of lime, and a barrel of this substance can conveniently be kept in the closet. If this plan be adopted (and these recommendations are the result of practical experience), house flies will have almost no chance to breed, and their numbers will be so greatly reduced that they will hardly be noticeable. Many experiments have been made in the treatment of manure piles in order to kill the maggots of the house fly, and the chloride-of-lime treatment has been found to be the cheapest and most efficacious.

It has been stated above that the closet for the reception of manure should be made tight to prevent the entrance or exit of flies. A window fitted with a wire screen is not desirable, since the corroding chloride fumes will ruin a wire screen in a few days.

Fruit flies.—While extended investigations have shown that the common house fly is the fly most to be feared in guarding against typhoid, on account of the fact that over 99 per cent. of the flies found in kitchens and dining-rooms and attracted to food supplies are house flies, there are a few others which are attracted to and which may breed in human excrement that also have to be guarded against, and as these do not breed in

horse manure the treatment just described will not be effective against them. The care of human excrement, however, will prevent the carriage of typhoid germs even by these species. The little fruit flies of the genus *Drosophila*, which breed in overripe or decaying fruit, are the principal species in this category. Therefore, fruit store-houses or fruit receptacles should be screened, and overripe fruit should not be allowed to remain in dining rooms or kitchens for any length of time.

OTHER DISEASES CARRIED BY INSECTS.

While in malaria and typhoid we have the two principal diseases common to the United States which may be conveyed by insects, the agency of these little creatures in the transfer of disease germs is much more widespread in warm countries, and it is by no means confined to human beings. In Egypt and in the Fiji Islands there is a destructive eye disease of human beings, the germs of which are carried by the common house fly. In our Southern States an eye disease known as pink-eye is carried by certain very minute flies of the genus *Hippeletas*. In certain tropical countries a disease known as filaria-is, which somewhat resembles certain forms of leprosy, is transferred among human beings by certain mosquitoes. There is good reason to suppose that the germs of the bubonic plague may be transferred from sick people to healthy people by the bites of fleas. The so-called Texas fever of cattle is unquestionably transferred by the common cattle tick, and this was the earliest of the clearly demonstrated cases of the transfer of disease by insects. In Africa a similar disease of cattle is transferred by the bite of the famous biting fly known as the tsetse fly. The

germs of the disease of cattle known as anthrax are carried by gadflies, or horse flies, and when these flies subsequently bite human beings malignant pustules may result, and other discoveries of this nature are constantly being made. Even the common bedbug is strongly suspected in this connection.

YELLOW FEVER.

One of the most important of these disease-transfer relations of insects which has been demonstrated is the recently proved carriage of yellow fever by certain mosquitoes. The cause of yellow fever has always been a mystery; and indeed it is a mystery to-day in a measure, since although undoubtedly a disease of parasitic origin, the parasitic organism itself has not yet been discovered. During the summer and autumn of 1900 and spring and summer of 1901 the work of a commission of surgeons of the United States Army has demonstrated in Cuba beyond the slightest possible doubt that yellow fever is not conveyed by infected clothing of yellow-fever patients or by contact with such patients or by proximity to them, but that it is conveyed by the bite of a certain species of mosquito known as *Stegomyia fasciata*, which abounds in regions where yellow fever is possible. The bite of this mosquito, however, does not convey yellow fever to a healthy person until twelve days have elapsed from the time when the same mosquito has bitten a person suffering with the disease. It follows from this fact that by keeping yellow-fever patients screened from the possibilities of mosquito bites we can prevent the yellow-fever mosquito from becoming infected. It follows further that by preventing healthy people from being bit-

ten by mosquitoes we can keep them free from the disease even where infected mosquitoes exist. And it follows still further that by the adoption of remedial measures looking toward the destruction in all stages of the yellow-fever mosquito we may reduce to a minimum the possibilities of the transfer of the disease. After demonstrating the fact, the medical officers of the Army in Cuba have put these measures into effect, and the results have been most gratifying. The health of Havana has constantly improved, and at the date of present writing the published statement has just been made that during the month of October, 1901, there was not a single case of yellow fever in Havana, while October is usually the severest month for that disease, and in fact during the past ten years the average number of deaths in the city during that month from yellow fever has been 66.27. This discovery, and this practical demonstration of its truth, it seems must soon change all methods of quarantine in the United States; and it seems certain that in the future the Gulf cities will no longer dread the disease or remain subject to the great vital and economic loss to which they have been subject from occasional yellow-fever outbreaks during past generations.

Sunlight and Malaria—Cure of Intermittent Fevers by Darkness and Fluorescent Light.

BY A. F. A. KING, M.D., WASHINGTON, D. C.
Professor of Obstetrics, University of Vermont
Medical Department, etc.

It is now well established that malarial fever is produced by a parasite (the *plasmodium malariae*, so-called), which feeds on and breeds in the red cor-

puscles of the blood; that this parasite gets into the blood by the bites of mosquitoes; that the fever paroxysms are produced by the periodic sporulation of successive groups of these parasites; and, that generally, but *not always*, the parasite is destroyed and the disease cured by quinine.

During the leisure hours of my sojourn in Burlington last summer, while thinking over the idea that malarial melanosis was a conservative process—a sort of “protective coloring” to hide man from the mosquito—as stated in my paper on “Mosquitoes and Malaria,” published in *Popular Science Monthly* for September, 1883, and regarding the whole process as a *pigment* disease, the idea of *color* suggested *light*; light suggested *darkness*; with these the variations of *day* and *night*, and the *diurnal periodicity* of malarial fever paroxysms, inevitably led me to the supposition that *sunlight* must have something to do in the drama of this disease. The facts that “chills” do not occur at night in the dark; and that people with *black* skins are more or less exempt, encouraged the supposition. Following out this idea, I have embodied the results in three papers recently published in the “*American Journal of Medical Sciences*” for February and June, 1902, and in the “*Washington Medical Annals*,” Vol. I, No. 1, for March, 1902.

A brief synopsis of those publications is here presented for the *Vermont Medical Monthly*. The following propositions were stated, viz.:

1. The sporulation of malarial parasites in the blood will be retarded, or fail to take place at all, in continued darkness. Other things being equal, this sporulation will be the more rapid and complete in direct proportion to the

intensity of the sunlight to which the body may be exposed and the duration of such exposure.

2. To prevent malarial fever (after infection) protect the human body from the *light* of the sun.

3. To cure the disease, protect the body from the light of the sun, or in some other way prevent the parasites from receiving this light.

The evidence in support of these statements is as follows:

First. The accumulated experience and observations of centuries, which have been supposed to prove the agency of solar *heat* in producing malarial fever, should be really attributed to solar *light*. Heat cannot warm the parasite while floating in a bath of blood at 98.2 degrees. Light can enter a translucent skin and act upon the plasmodium, as we shall see farther on, it does upon other amœbae.

Second. Paroxysms of regular intermittent fever will not, as a rule, occur at night, or in the dark. Exceptionally “chills” do occur at night; but often they are chills of tuberculosis, or of secondary syphilis, or of suppuration, etc., etc., that have been *mistaken* for ague chills. Again, it is possible that *artificial* light or brilliant moonlight may develop sporulation of the parasite during the night.

Third. The relative liability and relative immunity of different races of men to these fevers will depend, respectively, upon the relative translucency or non-translucency of their skin and of their blood. Black—*thoroughly* black—races are exempt. Many negroes suffer, because their skins are *not* impenetrable to light. In passing electric light through the external ears of over a hundred dark negroes, in Washington, I only found

three that were impenetrable to light. These had never had ague.

Fourth. In places where malarial fever prevails, the disease is increased by bright, sunny weather, and lessened by clouded skies. In other words, when the light of the sun is veiled by rain clouds and fogs, the parasites get less sunlight and their sporulation is retarded. Numerous instances given.

Fifth. It is an old popular tradition that to prevent the occurrence of ague in malarial regions, to forestall its *re-occurrence* when it has already occurred, it is best to keep in the *shade* and avoid sunlight. Popular traditions usually come from experience and are worth consideration. Centuries ago the native Africans believed that mosquitoes produced fevers. They were right.

Sixth. In typical cases of ordinary ague the disease is spontaneously curable, without medicine, by keeping the patient in the shade. Evidence presented.

Seventh. The malarial parasite is a naked ameba. Experiment shows that *red* light promotes the vital activity of amoebae, while *violet* or *purple* light restricts it. The *color* of the light diffused through the blood is, of necessity, *red* as any one can see by holding the hand over a candle in a dark place. Harrington & Leaming (Am. Jl. Physiology, Vol. III, No. 1. 1899, pp. 9-18) have demonstrated that the *amoeba proteus* streams in the presence of *red* light and ceases to stream in light from the violet end of the spectrum. Encysted amoebae stream in *red* light and cease to stream in *violet* or *white* light.

Now if we assume that the malarial ameba is of the same nature (which, however, requires future demonstration) it would explain the cure of malarial

fevers by methylene blue, by Prussian blue, and by iodine, which last becomes in the stomach *purple* iodide of starch.

But how about quinine? If this theory of light be correct, and if it be true that the parasite is destroyed in the blood by light from the violet end of the spectrum, the curative action of quinine should fall in line with this idea in some way.

Does quinine possess any peculiar relation with light that would furnish a clue to its curative effect? It does. It is remarkably *fluorescent*; it accentuates the violet rays of the spectrum and even renders the ultra-violet ones susceptible to human vision.

In support of this idea that it is the quality of fluorescence which gives quinine its curative value in malaria, I find first, that *other* substances possessing blue fluorescence, like quinine, notably *escutine* from the bark of the horse chestnut tree, and *fraxine* from the bark of the European ash, are effective antiperiodics in ague and have long been used successfully for this purpose.

As to quinine itself, the experiments of Drs. Rhoads and Pepper demonstrated over thirty years ago, long before we knew anything of the malarial parasite or mosquito, that in malarial disease the fluorescence of the blood is diminished, and that quinine restores the fluorescence to its normal standard, and *pari passu* with this increase of fluorescence the fever disappears and the patient gets well. (See Pennsylvania Hospital Reports for 1868, pp. 269-280. See also, *Philadelphia Medical Times*, Jan. 23, 1875, p. 259 *et seq.*)

It may be noted that the normal fluorescence of the blood was discovered by Dr. Henry Bence Jones in 1866 (see *Medical Times and Gazette*, London, Au-

gust, 1866, pp. 163-167); he also found in all of the organs and blood of men and guinea-pigs, a fluorescent substance, which possessed *all* the chemical and optical properties of quinine, which he called "animal quinidine." It was by following the experiments and discoveries of Jones, that Rhoads and Pepper were able to present to the world the twelve cases of ague in which they demonstrated that quinine cured by increasing fluorescence in the blood of fever patients. I am glad to have resurrected these cases and experiments from the oblivion in which they seem to have been engulfed for so many years.

Finally, why does quinine sometimes fail to cure? Why does its fluorescence apparently fail to act? Manson and others have kept patients cinchonized with quinine for days and weeks without a cure. I answer: These were cases of malignant parasites—the "tropico-autumnal" and others. The corpuscles containing them are not generally found in the *peripheral circulation*, where they can get light, but are found in the solid substances of the spleen and liver, in the marrow of bones and capillaries of the brain, than which no darker recesses of the body can be imagined; and where, surely, the fluorescent light produced by quinine can never act.

These malignant parasites are usually found in the small blood corpuscles of anemic, cachectic patients. These *small* corpuscles are too diminutive to get arrested in the somewhat *large* capillaries of the skin, where they can get light, but do get arrested in the much smaller capillaries of the internal organs before mentioned.

In a typical tertian ague, the infected corpuscles are always enlarged, sometimes they are twice as large as an un-

infected normal blood corpuscle, and this causes them to be arrested in the large cutaneous capillaries where they get light to accomplish their sporulation. When this arrested group of infected blood corpuscles has remained exposed to sunlight in the peripheral vessels a sufficient number of hours (24, 48, or 72, as the case may be), sporulation of the whole group takes place and the consequent shaking ague *chill* occurs, which joggles them out of their capillaries, breaks them up and sends them along in the blood stream. After the chill comes *fever*, congestion of the skin, and a new lot of infected corpuscles, larger than normal, gain access to the dilated skin capillaries. Next comes the *sweat*, by which a deluge of water is exuded from these dilated skin capillaries, which causes their walls to close in and shut down upon the large infected corpuscles and so keep them arrested and exposed to light in the peripheral circulation a sufficient number of hours to accomplish their sporulation. When another paroxysm of ague, with its successive stages of chill, fever and sweat, repeats the process. Here quinine can cure by its fluorescent light. It cannot cure by the same means the cases in which the *small* corpuscles infected with malignant parasites do not remain in the illuminated parts of the circulation, but rest in the smaller capillaries of the interior where it is *dark*. Thus the exceptions in which quinine fails to cure by fluorescence, tends to prove the rule that it *usually does* so cure.

Finally, the future treatment of intermittent fever—prophylactic and curative—would seem to be scoto-therapy, that is if future experiment should prove my views to be correct.—*Vermont Medical Monthly*.

Review of Diseases for June, 1902.**EIGHTY-SEVEN COUNTIES REPORTING.**

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

MEASLES.—Beaufort, 10 cases; Bladen, 3; Brunswick, many; Cabarrus, 1; Camden, 6; Caswell, 50; Chatham, many; Currituck, several; Davidson, a few; Harnett, many; Johnston; Jones, several; Moore, a few; Onslow, 4; Pamlico, 5; Rockingham, a great many; Scotland, 2; Surry, 40; Union, 10; Wake, 7; Wilkes, 4—21 counties.

WHOOPING-COUGH. — Alamance, 40; Beaufort, 8; Bladen, 2; Cabarrus, 8; Camden, 6; Caswell, 50; Cleveland, several; Craven, 4; Edgecombe, 50; Gates, 6; Harnett, many; Hyde, 40; Johnston; Moore, epidemic at Sanford; Northampton, many; Orange; Pamlico, 7; Robeson, several; Rockingham; Sampson, many; Union, 20; Wake, 8; Washington, in all parts; Yancey, several—25 counties.

SCARLET FEVER.—Cabarrus, 3; Catawba, 1; Davie, 1; Iredell, 4; Jones, 1; New Hanover, 2; Onslow, 1; Person, a few; Polk, 1—9 counties.

DIPHTHERIA.—Cleveland, 1; Lincoln, 1; Stanly, 1.

TYPHOID FEVER.—Alexander, 6; Ashe, 1; Beaufort, 3; Bladen, 19; Burke, 6; Cabarrus, 1; Caldwell, 4; Camden, 2; Caswell, 1; Catawba, 4; Chatham, a number; Chowan, 8; Clay, 3; Cleveland, a few; Columbus, a few; Craven, 6; Currituck, 1; Davidson, a few; Duplin, 3; Durham, a few; Franklin, 6; Gates, 2; Graham, 4; Granville, 1; Greene, 5; Harnett, a few; Hertford, 4; Iredell, 12; Johnston; Jones, 3; Lenoir, 9; McDowell, 2; Macon, 1; Nash, 5; New Hanover, 7; Northampton, many; Onslow, 3; Pasquotank, 6; Pender, several; Perquimans, 4; Polk, 4; Randolph, 10; Robeson, a few; Rockingham; Rutherford, 1; Sampson, several; Scotland, 15; Stanly, a few; Union, 15; Vance, a few; Wake, 12; Warren, 2; Watauga, 2; Wayne, several; Wilkes, 1—55 counties.

MALARIAL FEVER.—Anson, a few; Brunswick; Caswell, in all parts; Columbus; Craven, in all parts; Currituck; Forsyth, in all parts; Gates; Greene, general; Hyde; Lenoir, general; Onslow, general; Pamlico; Pasquotank; Perquimans; Randolph; Sampson, general, Scotland; Vance, general; Washington, general; Wayne; Wilson—22 counties.

MALARIAL FEVER, PERNICIOUS.—Hyde, 1; Pamlico, 1.

MALARIAL FEVER, HEMORRHAGIC.—Craven, 1; Hyde 2; Lenoir, 3; Pamlico, a few.

BOWEL DISEASES.—Alexander; Ashe; Bertie; Brunswick; Burke; Camden; Caswell, general; Catawba; Cleveland; Columbus; Currituck; Gaston, several; Gates, general; Granville; Guilford; Harnett; Hertford, general; Iredell, general; Jackson; Lincoln, general; McDowell; Macon; Martin, general; New Hanover, general; Onslow, general; Orange, general; Pamlico, Pender, gener-

al; Person; Polk; Randolph; Robeson; Rockingham, general; Sampson, general; Swain; Wake, general; Washington, general; Wilkes, general; Wilson, general; Yadkin—40 counties.

MUMPS.—Dare, a few; Person, and Wilkes.

PNEUMONIA.—Gaston, 1.

ROSEOLA.—Hyde.

SMALL-POX.—Camden, 1; Carteret, 8—“eighteen miles from Beaufort, quarantine and compulsory vaccination resorted to”; Catawba, 18; Gaston, 5; McDowell, 1; Mecklenburg, 2; Northampton, 7; Rockingham, 4; Rutherford, 1; Surry, 9; Wilson, 8; Yadkin, 2—12 counties.

CHOLERA, IN CHICKENS.—Chatham.

CHOLERA, IN HOGS.—Chowan.

MURRAIN AND BLACKLEG, IN CATTLE.—Ashe.

MENINGITIS AND AN UNKNOWN DISEASE, IN HORSES.—Lenoir.

STAGGERS, IN HORSES.—Pamlico.

No diseases reported from Cumberland, Haywood, Henderson, Madison, Mitchell and Pitt.

No reports received from Alleghany, Buncombe, Cherokee, Halifax, Montgomery, Richmond, Rowan, Stokes and Transylvania.

Summary of Mortuary Reports for June, 1902.

(TWENTY-FIVE TOWNS).

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population.....	81,600	55,650	137,250
Aggregate deaths..	152	130	282
Representing temporary annual death rate per 1,000	22.5	28.0	23.9

Causes of Death.

Typhoid fever.....	5	2	7
Malarial fever.....	0	8	8
Whooping-cough...	2	1	3
Pneumonia.....	3	2	5
Consumption	22	23	45
Brain diseases.....	10	4	14
Heart diseases.....	11	5	16
Neurotic diseases...	2	2	4
Diarrhoeal diseases	45	31	76
All other diseases..	42	47	89
Accident	8	5	13
Suicide.....	1	0	1
Violence	1	0	1
	152	130	282
Deaths under five years.....	49	52	101
Still-born.....	5	9	14

Mortuary Report for June, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE, PER 1,000.										TOTAL DEATHS.	Deaths under five years.		
		RACES.			By Races.			By Races.			By Races.				
				Total.			Total.			Total.					
Asheville	W. Dr. C. V. Reynolds.	10,000	14,800	20.4	18.6	1	1	1	1	1	1	1	1	17	5
	C.	4,800		15.0										6	3
Charlotte	W. Dr. F. O. Hawley.	11,000	18,200	26.2	27.7									23	3
	C.	7,200		30.0										6	2
Durham	W. Dr. N. M. Johnson.	8,000	13,000	13.5	15.7	2	1	1	1	1	1	1	1	17	6
	C.	5,000		19.2										8	3
Edenton	W. Dr. T. J. Hoskins.	1,200	3,000	10.0	8.0									1	2
	C.	1,800		6.7										1	1
Fayetteville	W. Dr. John D. MacRae.	2,500	4,800	9.6	17.5									2	7
	C.	2,300		26.1										5	7
Henderson	W. Dr. F. R. Harris.	2,100	3,800	34.3	25.3									6	4
	C.	1,700		14.1										2	2
Laurinburg	W. Dr. A. W. Hamer.	800	1,400	0.0	17.1									0	0
	C.	600		40.0										2	2
Lenoir	W. Dr. A. K. Kent.	1,200	1,500	10.0	8.0									1	1
	C.	300		0.0										0	0
Lexington	W. J. H. Moyer, Mayor.	800	1,300	60.0	36.9									4	4
	C.	500		0.0										0	0
Marion	W. Dr. B. A. Cheek.	800	1,150	15.0	10.4									1	1
	C.	350		0.0										0	0
Monroe	W. Dr. J. M. Blair.	1,850	2,450	13.0	19.6	1								2	4
	C.	600		40.0										2	4
Oxford	W. Dr. S. D. Booth.	1,200	2,300	20.0	20.8									2	2
	C.	1,100		21.8										2	4
Raleigh	W. T. Sale, Clerk B. H.	8,000	13,800	19.5	27.0	1								13	5
	C.	5,800		37.4										31	7
Reidsville	W. Jas. T. Smith, Cy. Cl.	2,900	4,200	33.1	40.0	1								1	1
	C.	1,300		55.4										6	4
Rocky Mount	W. Dr. G. L. Wimberley, Jr.	1,600	3,100	15.0	11.6									2	3
	C.	1,500		8.0										1	1
Salem	W. F. E. Keehn, Supt. H.	3,300	3,650	14.5	16.7									4	5
	C.	350		34.3										1	1
Salisbury	W. Dr. W. W. McKenzie.	3,900	6,400	30.8	20.6									10	4
	C.	2,500		4.0										11	1
Southport	W. Dr. D. I. Watson.	900	1,400	13.3	17.1									1	2
	C.	500		24.0										1	1
Tarboro	W. Dr. L. L. Staton.	2,000	2,500	0.0	0.0									0	0
	C.	500		0.0										0	0
Wadesboro	W. Dr. J. H. Bennett.	1,000	1,700	0.0	7.1									0	0
	C.	700		17.1										1	1
Washington	W. Dr. Jno. G. Blount.	3,000	5,500	56.0	41.4									14	4
	C.	2,500		24.0										19	3
Waynesville	W. T. Stringfield, Mayor.	1,000	1,300	36.0	27.7									3	3
	C.	300		0.0										0	0
Weldon	W. J. T. Gooch, Mayor.	700	1,450	34.3	33.1									2	1
	C.	750		32.0										2	4
Wilmington	W. Dr. Chas. T. Harper.	10,000	21,000	24.0	33.7	1								20	9
	C.	11,000		42.5										59	18
Wilson	W. Dr. W. S. Anderson.	1,850	3,550	38.9	50.7									6	3
	C.	1,700		63.5										9	5

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. B. C. Waddell.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing-
Columbus.....	Dr. I. Jackson.	house.	
Craven.....	Dr. N. H. Street.	Polk	Dr. Earle Grady.
Cumberland.....	Dr. Jno. D. McRae.	Randolph	Dr. S. A. Henley.
Currituck	Dr. H. M. Shaw.	Richmond.....	Dr. Wm. P. S. Webb.
Dare	Dr. W. B. Fearing.	Robeson	Dr. H. T. Pope.
Davidson	Dr. Joel Hill.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan.....	Dr. W. L. Crump.
Duplin	Dr. O. F. Smith.	Rutherford.....	Dr. T. B. Twitty.
Durham	Dr. N. M. Johnson.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Scotland	Dr. A. W. Hamer.
Forsyth.....	Dr. John Bynum.	Stanly.....	Dr. V. A. Whitley.
Franklin	Dr. E. S. Foster.	Stokes	Dr. W. V. McCanless.
Gaston.....	Dr. J. H. Jenkins.	Surry	Dr. John R. Woltz.
Gates.....	Dr. W. O. P. Lee.	Swain.....	Dr. J. A. Cooper.
Graham	Dr. R. J. Orr.	Transylvania	Dr. C. W. Hunt.
Granville	Dr. S. D. Booth.	Tyrrell.....	
Greene.....	Dr. Joseph E. Grimsley.	Union	Dr. John M. Blair.
Guilford.....	Dr. Edmund Harrison.	Vance.....	Dr. Goode Cheatham.
Halifax	Dr. I. E. Green.	Wake.....	Dr. J. J. L. McCullers.
Harnett.....	Dr. O. L. Denning.	Warren.....	Dr. A. S. Pendleton.
Haywood	Dr. S. B. Medford.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga.....	Dr. T. C. Blackburn.
Hertford	Dr. J. H. Mitchell.	Wayne.....	Dr. Williams Spicer.
Hyde	Dr. E. H. Jones.	Wilkes.....	Dr. W. P. Horton.
Iredell	Dr. Henry F. Long.	Wilson.....	Dr. W. S. Anderson.
Jackson.....	Dr. R. L. Davis.	Yadkin	Dr. M. A. Royall.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. L. Ray.



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: _____

M. D.

190

N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
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FRANCIS DUFFY, M. D., New Bern.
W. H. WHITEHEAD, M. D., Rocky Mt.
J. L. LUDLOW, C. E., Winston.

VOL. XVII.

AUGUST, 1902.

No. 5.

Typhoid Fever—Its Prevention.

Seventy-five of the ninety superintendents of health reporting for the month of July report typhoid fever as present in their counties. This shows the disease to be more widely prevalent in our State than at any time since the establishment of the Board of Health, with one exception, July, 1901, when it was 77 out of 91. And after all it is probably not a fair statement of the real condition of affairs, for it is a lamentable fact that a great many physicians neglect to report to their county superintendent of health as they ought to do, and there are doubtless one or more cases in several of the counties which fail to report it. Now, this thing ought not so to be, for typhoid fever is unquestionably a preventable disease, and the record above given shows carelessness and negligence somewhere.

Although we have "rung the changes"

repeatedly on this subject, and may weary our readers, the importance of the matter and the statement of the greatest of the inspired Prophets of old that "precept must be upon precept, precept upon precept; line upon line, line upon line: here a little and there a little," constrain us to ring once more.

The active agency in the causation of typhoid fever is a bacterium, the *bacillus typhosus*, which attacks and causes the ulceration of certain glands in the small intestine, developing therein by myriads. They are therefore to be found chiefly in the bowel discharges, although present also in the excretion of the kidneys and to some extent in the expectoration of a person sick with the disease. From one of these sources, nearly always the first named, the bacteria are transferred to the intestinal tract of a healthy person. The poison is always swallowed. The most common agencies of transfer are the drinking water, including milk in-

fected from washing cans in polluted water, and the common house fly, although it may be conveyed directly to the nurse by her own soiled hands, and sometimes in dust. The most important rules therefore for the prevention of the extension of the disease may be briefly stated as follows:

1. Cover *immediately* upon their passage the body discharges—to prevent access of flies.

2. As soon as possible thoroughly disinfect the discharges by mixing in equal quantity with them one of the following: (a) freshly made milk of lime or "whitewash"; (b) a five per cent. solution of carbolic acid; (c) a 1 to 1,000 solution of corrosive sublimate; (d) a 1 per cent. solution of formaldehyde. After standing a half-hour (covered all the time) the mixture should be *buried* (never thrown on the surface of the ground) at a distance from the well of not less than 150 feet.

3. Provide in the sick-room a wooden tub one-third full of either of the three last named solutions, and drop therein as soon as removed everything in the way of body or bed-clothing, handkerchiefs, towels, etc., that have come in contact with the patient, and keep them submerged until they can be *boiled*, washed and dried in the sun.

4. All remnants of food that may for any reason be carried into the sick-room must be burned.

5. The nurse should wash her hands and dip them into one of the solutions, preferably corrosive sublimate, after every "changing" of the patient. She

should never draw water from the family well unless a pump is used. In case it should be absolutely necessary she should disinfect her hands as above before doing so.

6. The soiled linen of the patient should never be washed at or near the well or spring. The greatest care should be observed to prevent the drainage or seepage through the soil into the well or spring from accumulation of filth of all kinds. As soon as a case of typhoid fever appears in a family all drinking water should be boiled until a report on the same can be obtained from the State Biologist, the family physician making application to the Secretary of the Board of Health for permit and sterilized bottle.

7. As the germ is present in the intestine in the preliminary stages and for several weeks after convalescence is established and the patient practically well, extra care of surface privies should be observed. Every evacuation should be immediately and completely covered with lime or dry powdered earth.

Summary.—Prompt disinfection of all discharges from the body of the patient; protection of the same against flies; special care as to the drinking water; scrupulous cleanliness.

To the Profession.—As the people cannot be reached except through the medical attendant we earnestly beg all physicians having cases of typhoid fever under their care to insist upon the strict observance of the above simple rules. Printed copies of the same will be furnished in quantity upon request.

Extracts from Bulletin of the Pathological and Bacteriological Laboratory of the Delaware State Board of Health for July.

A WORD OF ENCOURAGEMENT.

In the Annual Report of the Secretary of the North Carolina State Board of Health it is seen that during the first six months of existence of their laboratory only 141 samples were analyzed, of which 35 were pathological, mostly sputum, 48 of drinking water and 58 of milk. "When we consider the fact that there are about 1,500 physicians in the State," complains the Secretary, "it will be seen that less than one per cent. take advantage of the valuable privilege offered." In Delaware, the physicians did better than that, twice that number of samples having been analyzed during the first six months, with the number of physicians being only about 250. Yet even our physicians have not fully realized the value of bacteriological examinations. It is up-hill work to make the doctors appreciate the aid they receive from a bacteriological laboratory, but it is somewhat of a comfort to know that they are beginning to use the laboratory more and more. During the last, our third year, we examined about 1,000 specimens. We have no doubt that in time the physicians in North Carolina will learn to avail themselves of the advantages they are being offered by the wide-awake Board of Health.

HOME HOSPITAL TREATMENT BY THE PASTEUR METHOD FOR RABIES.

Since the publication of our last Bulletin seven persons have been sent from Wilmington to the Pasteur Institute in Baltimore to be vaccinated against rabies. This was done at an expense of

between seven and eight hundred dollars, which amount was raised by public charity.

In connection with this we beg leave to suggest that this treatment might just as well be administered at home in either of the public hospitals at a much less cost.

The virus of graduated strength can now be sent to any public institution daily, and the treatment consists in a simple hypodermic injection of the necessary quantity.

Any physician who has administered antitoxin is qualified to inject rabies virus.

Antiseptic precautions are of course essential, but this is understood.

The essential thing is to obtain the virus from a reputable laboratory, such for instance as the Health Department Laboratory of the City of New York, from which supplies have already been obtained, both for the treatment of human and animal subjects.

That the treatment can be successfully given by local physicians is instanced by the fact that two boys have recently been treated by a well known practitioner of Wilmington, and with perfect success.

The virus was obtained from the New York Department of Health.

THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.

Elbridge G. Cutler (Bost. Med. and Surg. Jour., May 29, 1902) presents the following conclusions, signed by a committee consisting of Drs. Samuel H. Durgin, chairman; J. H. McCollum, Elbridge G. Cutler, John Lovett Morse and Richard C. Cabot:

Typhoid Fever—(1) The period of incubation is most often 12 to 14 days, frequently 9 or 10 days, occasionally 8 and possibly less. In rare cases it is prolonged to 15, 18 or even 23 days. (2) The period of observation is uncertain, and under some circumstances should extend over 28 days, namely, when the water supply cannot be changed. (3) The period of isolation, in the ordinary acceptation of the term, should extend through the period of convalescence; and proper disinfection of the stools and urine, and possibly of the sputum, should be practiced for at least a month after the symptoms have ended. Recent observations have shown that the bacilli may persist in the urine for a much longer time, hence to ensure absolute safety, the patient should be considered a possible source of danger until the bacilli have disappeared from the urine.

Mumps—(1) The usual period of incubation is 3 weeks. The shortest period is probably 14 days. (2) The period of observation should be 25 days. (3) The period of isolation should be 28 days and, if all glandular swellings have subsided and there is no tenderness of the breast or other parts of the body, the patient may be released.

Scarlet Fever—(1) The period of incubation is 2 to 3 days as a rule, but it may be 8 (and possibly 20—McCollum). (2) The period of observation should be 10 days, provided there is absence of fever and sore throat, and all fomites are disinfected. (3) The period of isolation, so far as danger to others is concerned, should be from the appearance of the eruption until desquamation has ceased, the nose and throat should be healthy, all complications should be over, thorough disinfection of house, patient

and belongings should have been done before the patient is released.

Whooping-cough—(1) The duration of the incubation state is from 4 to 10 days. (2) The period of observation should be 21 days. (3) The period of isolation should be from the commencement of the whooping or spasmodic stage and should last until the characteristic cough has ceased.

Measles—(1) The incubation period is 11 or 12 days; it may be 10 or possibly shorter. On the other hand it may be as long as 14 days. (2) The period of observation should be 16 days. (3) The period of isolation should last till desquamation and catarrhal symptoms have come to an end.

Chicken-pox—(1) The period of incubation is usually 14 days. It may be from 11 to 19 days. (2) The period of observation should be 20 days. (3) Infectiousness lasts until convalescence is over and all scabs, especially of the scalp, have been detached. This, then, should be the period of isolation.

German Measles (Rotheln)—(1) The incubation period is 18 days usually, but it may be possibly 5 to 21 days. (2) The period of observation should be 23 days. (3) The isolation period should be 14 to 21 days, according to the severity of the attack.

Small-pox—(1) The stage of incubation is 11 or 12 days, usually. It may be 8 days and perhaps 20 days. (2) The period of observation should be 3 weeks. (3) The patient may be released from isolation when all primary crusts have fallen off and patient's hair and skin surface has been thoroughly disinfected as well as all infected articles.

Diphtheria—(1) The period of incu-

bation of diphtheria of throat or larynx is usually 2 days. It does not often exceed 4 days, but occasionally reaches 7. (2) For a single exposure the period of observation should be 12 days. (3) The period of isolation after an attack of diphtheria should last till two consecutive negative results from the throat have been obtained before release of the patient.

Influenza—(1) The period of incubation is 2 or 3 days usually. (2) The period of observation after exposure should be 6 or 7 days, according to the virulence of the epidemic. (3) The period of isolation of the sick should last till catarrhal symptoms are ended.—*From the Philadelphia Medical Journal.*

Review of Diseases for July, 1902.

NINETY COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of July the following diseases have been reported from the counties named:

MEASLES.—Alleghany; Chatham, several cases; Davidson; Granville, 4; Harnett, a few; Jones, several; Onslow, 3; Pamlico, 16; Robeson, a few; Rockingham; Stokes, 1—11 counties.

WHOOPING-COUGH.—Alamance, 15; Anson; Beaufort, 1; Camden; Caswell, several; Chowan, several; Cleveland, a few; Columbus, a few; Craven, 4; Davidson; Durham, a few; Edgecombe, 1; Gates, 30; Harnett, many; Hyde, 40; Lenoir, many; Montgomery, 5; Pamlico, 54; Robeson, epidemic; Rockingham; Sampson, 1; Stokes, 1; Union, 10; Washington, epidemic; Yancey, many—25 counties.

SCARLET FEVER.—Catawba, 4; Forsyth, 1; Guilford, 4; Henderson, 1; McDowell, 2; Mecklenburg; Orange, 1; Person; Sampson, 1; Union, 1; Wake, 1; Watauga, 15—12 counties.

DIPHTHERIA.—Cabarrus, 6; Mecklenburg, 4.

TYPHOID FEVER.—Alamance, 3; Alexander, 10; Alleghany; Anson, several; Ashe, 1; Beaufort, 2; Bertie, 5; Bladen, 16; Brunswick, 4; Burke, 10; Cabarrus, 4; Caldwell, 10; Camden, 3; Catawba, 8; Chatham, a number; Chowan, 25 or 30; Clay, a few; Cleveland, a few; Columbus, 8; Craven, 8; Cumberland, a few; Currituck, 1; Davidson; Duplin, a few; Durham, a few; Forsyth, a few in all parts; Franklin, 4 or 5; Gaston; Gates, 4; Granville, 5; Greene, 15; Guilford, many; Halifax; Harnett, many; Haywood, 4; Hertford, 20; Iredell, 30; Jackson, 10; Johnston; Jones, 5; Lenoir, 4; Lincoln, 6; McDowell, 6; Macon, 8; Martin, 4; Mecklenburg; Montgomery, 8; Moore, a few; Nash, 9; New Hanover, 15; Northampton, many; Onslow, 1; Orange, 1; Pasquotank, 3; Pender, a few; Perquimans, 12; Person; Polk, 2; Randolph, 15; Robeson, a few; Rockingham, a few; Rutherford, 3; Sampson, many; Scotland, 12; Stanly; Stokes, 4; Surry, 1; Swain, 5; Union, 20; Vance, a few in all parts; Warren, several; Wa-

tanga, 10; Wayne, several; Yadkin, 3; Yancey, a few—75 counties.

MALARIAL FEVER.—Alamance, in all parts; Bertie, in most parts; Bladen; Brunswick; Caswell, in all parts; Chowan, in all parts; Craven, in all parts; Currituck, in many parts; Gates, in all parts; Greene, in all parts; Halifax; Hertford; Hyde; Lenoir, in all parts; Montgomery; New Hanover, in all parts; Northampton; Onslow, in all parts; Orange, in many parts; Pamlico; Pasquotank; Pender, in all parts; Perquimans; Person; Randolph, in most parts; Rockingham, in all parts; Stanly; Union, in all parts; Washington; Wayne—30 counties.

MALARIAL FEVER, PERNICIOUS.—Brunswick, 1; Chowan, 3; Gates, 2.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 1; Craven, 1; Hertford, 1; Hyde, 1; Perquimans, 1.

BOWEL DISEASES.—Caswell, Columbus, Currituck, Gates, Harnett, Henderson, Lincoln, Macon, Onslow, Orange, Pender, Stokes, Surry, Swain, Wilkes—15 counties.

MUMPS.—Dare, Davidson, McDowell, Pamlico.

PNEUMONIA.—Alleghany.

SMALL-POX.—Carteret, 3; Cleveland, 4; Gaston, 3; Haywood, 8; Henderson, 8; McDowell, 2; Mecklenburg, 9; Northampton, 11; Rockingham, 5; Rutherford, 1—10 counties.

CHOLERA, IN HOGS.—Martin.

HORSES.—Dare, 3 or 4 died of the disease prevalent a few months ago.

No diseases reported from Davie, Madison, Pitt and Wilson.

No reports received from Buncombe, Cherokee, Graham, Mitchell, Richmond and Rowan.

Summary of Mortuary Reports for July, 1902.

(TWENTY-SIX TOWNS).

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population.....	\$1,500	57,650	139,150
Aggregate deaths..	123	160	283
Representing temporary annual death rate per 1,000	18.1	33.3	24.4

Causes of Death.

Typhoid fever	9	13	22
Malarial fever.....	3	17	20
Diphtheria	0	1	1
Whooping-cough...	1	8	9
Pneumonia.....	0	4	4
Consumption	11	16	27
Brain diseases	10	4	14
Heart diseases.....	4	14	18
Neurotic diseases...	2	3	5
Diarrhoeal diseases	24	33	57
All other diseases..	55	42	97
Accident	4	3	7
Violence	0	2	2
	<hr/>	<hr/>	<hr/>
	123	160	283
Deaths under five years.....	49	69	118
Still-born.....	9	12	21

Mortuary Report for July, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.	
		RACES. By Races, Total.	Total. By Races.
Charlotte Dr. F. O. Hawley.	{ W. 11,000 C. 7,200	18,200 31.7	18.4 1
Durham Dr. N. M. Johnson.	{ W. 8,000 C. 5,000	13,000 36.0	24.0 2
Edenton Dr. T. J. Hoskins.	{ W. 1,200 C. 1,800	3,000 13.3	20.0 16.0
Fayetteville Dr. John D. MacRae.	{ W. 2,500 C. 2,300	4,800 20.9	14.4 17.5
Goldsboro Geo. E. Hood, Mayor.	{ W. 3,500 C. 2,600	6,100 27.7	34.3 31.5
Greensboro Jno. S. Michaux, C. C.	{ W. 6,100 C. 4,000	10,100 75.0	9.8 35.6
Henderson Dr. F. R. Harris.	{ W. 2,100 C. 1,700	3,800 35.3	5.7 19.0
Laurinburg Dr. A. W. Hamer.	{ W. 900 C. 600	1,500 20.0	0.0 8.0
Lenoir Dr. A. A. Kent.	{ W. 1,200 C. 300	1,500 0.0	0.0 0.0
Lexington J. H. Moyer, Mayor.	{ W. 800 C. 500	1,300 48.0	0.0 18.4
Marion Dr. B. A. Cheek.	{ W. 800 C. 400	1,200 0.0	30.0 20.0
Monroe Dr. J. M. Blair.	{ W. 1,900 C. 600	2,500 0.0	12.7 9.6
Oxford Dr. S. D. Booth.	{ W. 1,200 C. 1,100	2,300 21.8	30.0 26.1
Raleigh T. P. Sale, Clerk B. H.	{ W. 8,000 C. 5,800	13,800 29.0	21.0 24.3
Reidsville Jas. T. Smith, Cy. Cl.	{ W. 2,900 C. 1,300	4,200 9.2	12.4 11.4
Rocky Mount Dr. G. L. Wimberley, Jr.	{ W. 1,600 C. 1,500	3,100 0.0	15.0 7.7
Salem J. A. Vance, Mayor.	{ W. 3,300 C. 350	3,650 1.0	18.2 34.3
Salisbury Dr. W. W. McKenzie.	{ W. 3,900 C. 2,500	6,400 1.0	24.7 24.4
Southport Dr. D. I. Watson.	{ W. 900 C. 500	1,400 0.0	26.7 17.1
Tarboro Dr. L. L. Staton.	{ W. 2,000 C. 500	2,500 0.0	6.0 4.8
Wadesboro Dr. J. H. Bennett.	{ W. 1,000 C. 700	1,700 34.3	24.0 28.2
Washington Dr. Jno. G. Blount.	{ W. 3,000 C. 2,500	5,500 14.4	28.0 21.8
Waynesville T. Stringfield, Mayor.	{ W. 1,000 C. 300	1,300 0.0	12.0 9.2
Weldon J. T. Gooch, Mayor.	{ W. 700 C. 800	1,500 30.0	0.0 16.0
Wilmington Dr. Chas. T. Harper.	{ W. 10,000 C. 11,000	21,000 45.8	29.8 37.6
Wilson Dr. W. S. Anderson.	{ W. 2,000 C. 1,800	3,800 60.0	36.0 50.0

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

*In addition there were three deaths, two white and one colored, from typhoid fever, of patients sent to hospital from out of town.

^{+In}In addition one white, under 5 years, non-resident, died of a diarrhoeal disease.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin.	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing- house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. Wm. P. S. Webb.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. E. M. Gayle.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watauga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton.		

BULLETIN

OF THE

North Carolina Board of Health.

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VOL. XVII.

SEPTEMBER, 1902.

No. 6.

Small-pox Again.

Herpes it is this time. Just as we were beginning to get a crumb of comfort out of the apparent fact that *impetigo contagiosa*, Cuban itch, elephant itch, and Georgia bumps had disappeared from our borders, and were indulging in the hope that chicken-pox was perhaps slightly relaxing its fearful grip upon the medical imagination, we were suddenly plunged once more into despair by the announcement that *herpes!* had come to a certain small town, whose name we will not call in company. Under this name, according to the report of our Inspector, who was immediately sent upon notification, small-pox has been present in the community for three months. No precautions whatever had been taken prior to his visit, patients with the eruption on them being allowed to walk the streets, and nearly

a hundred cases had occurred. The doctor whose mistake in diagnosis brought about this condition of affairs was the second victim of his "*herpes*," and being no doubt honest in his mistake, visited his patients with pustules on his body. He will carry with him through life, we are informed, the pits of what is known as variola or small-pox by the medical profession generally, and as wicked as it may be, we must confess to a feeling of deep satisfaction thereof. We are free to admit that there is occasionally real difficulty in making the differential diagnoses between the mild type of small-pox that has generally prevailed and chicken-pox, but *herpes!!*

We feel that perhaps we ought to apologize to our readers for inflicting so much on the subject of small-pox upon them, but the state of affairs detailed above shows that a few more words are needed by some who are liable to do incalculable harm through ignorance or

carelessness. The small-pox conditions are threatening. Heretofore it has practically died out in summer, but the reports for August show its presence in fifteen counties during that month and in some outbreaks of a worse type than usual. It is evident, therefore, that unless earnest and conscientious efforts are made by the county and municipal authorities to stamp it out promptly and thoroughly wherever it makes its appearance—above all things seeing to it that all the people are vaccinated—we are sure to be greatly afflicted during the coming winter. We are seriously concerned about it.

Our experience in the past has shown that almost always a mistake in diagnosis has been at the bottom of every outbreak of any magnitude. Mistakes, honest mistakes, will continue to be made, and in some instances not without reasonable grounds for it, and we therefore desire to emphasize as strongly as possible two things:

1. *Small-pox of a generally mild and often irregular form being widely prevalent, the presumption always is that an eruptive disease resembling small-pox is small-pox, especially when occurring in adults.*

2. *A fundamental rule in its management is that whenever there is any doubt whatever about the diagnosis all the precautions as against small-pox should be taken until the diagnosis is settled in the negative beyond question.*

As a help towards making a correct diagnosis, we take pleasure in appending an excellent article from the August number of our valued contemporary, the *Bulletin of the State Board of Health of Maine*, entitled:

SOME POINTS ON THE DIAGNOSIS OF MILD OR ATYPICAL CASES OF SMALL-POX.

The diagnosis of the type of small-pox, so widely prevalent over the whole country during the last few years, has presented so many difficulties, and mistakes which have been followed by serious results have been so frequent that the following has been prepared with the hope that it may prove helpful:

There appear to be two principal reasons for these frequent mistakes:

One is the failure to recognize the fact that the type of the disease has an unusually large percentage of mild cases, even irrespective of vaccination, and that the eruption in some of the mild cases, resembles somewhat closely that of chicken-pox.

Another reason is that the clinical history of the cases, particularly of the period of invasion and of the early period of eruption is not carefully traced out, but the diagnosis is based upon the appearance of the eruption alone.

There is not a single point taken alone upon which it is safe to base a differential diagnosis between chicken-pox and small-pox in its mild or modified form; but when a case is found with a history of about three days' illness with headache and feverishness, and perhaps backache, followed by an eruption which, in most cases comes out on the forehead or face and wrists first, and which, if you do not observe it yourself, the description of the patient or of his friends indicates was at first macular, then papular, and then vesicular, the papular stage having been followed by a marked amelioration of the febrile symptoms, you have good reason to believe or suspect that you have a case of small-pox on hand.

Other points which should be borne in mind are the following:

Age.—Chicken-pox sometimes, but rarely, occurs in adults. A group of cases of chicken-pox in adults is certainly strong presumptive proof of small-pox.

Exposure.—The fact that no history of exposure can be obtained should not, for a moment, stand in the way of diagnosis of small-pox, when the clinical history and the appearance and feel of the eruption are suggestive of small-pox.

Vaccinal History.—The history of a comparatively recent, successful vaccination does not absolutely exclude the diagnosis of small-pox, neither does the fact of a previous attack of small-pox, particularly if the former attack was mild and occurred years ago.

Systemic Disturbance.—In many cases of mild small-pox, there is nothing to distinguish them from chicken-pox. Some patients will even say that they were not ill, but a careful enquiry usually elicits the information that, even in the mildest cases, they were not as well as usual for two or three days before the eruption appeared. One patient lately seen was "bilious" three days prior to the appearance of the sparse eruption. Backache, a marked symptom in many cases of unmodified small-pox, is slight or absent in many cases of the modified disease. The same may be said of chill and of vomiting, nausea, and epigastric distress.

Eruption.—In some cases of small-pox, the eruption is not so profuse as it is in some cases of chicken-pox. There may indeed appear only a dozen papules or vesicles, or rarely not more than two or three.

Distribution of Eruption.—In most cases the eruption of small-pox appears

first on the forehead and face and wrists and extends successively to the trunk and lower extremities, but, in a few cases, instead of appearing on the exposed parts of the skin, it comes first on the parts usually covered by clothing, thus following the rule generally laid down for chicken-pox.

Development of Eruption.—The typical small-pox eruption appears in the great majority of cases after about three days' illness: first presenting a macular appearance, then in succession becoming papular, vesicular, and pustular, the whole time from the appearance of the eruption to the full development of the pustules being seven or eight days, and to the drying up of the pustles, twelve or thirteen days. This is in strong contrast to the development of the eruption of chicken-pox which appears as red macules and semi-papules during the first twenty-four hours, and changes to vesicles in a few hours. In four or five days the eruption of chicken-pox has passed through its transformations and desquamation is under way.

In many cases of modified small-pox the eruption pursues an atypical course. Some of the poxes may abort in the papular stage, many of the vesicles, or even all, dry up and never become rounded pustules, and the whole period to desquamation is much shorter than in typical small-pox.

Falling of Temperature with Appearance of Eruption.—The sudden remission of the temperature and the amelioration of all the symptoms as soon as the eruption appears is characteristic of small-pox particularly of the mild or modified form and very rarely occurs in chicken-pox, measles, or scarlatina. Taken with the three days' illness, or thereabout, be-

fore the appearance of the eruption, this distinct remission goes quite a way in helping to establish the diagnosis of probable small-pox.

Successive Crops.—It is quite characteristic of the eruption of chicken-pox for it to appear in successive crops, and of small-pox that the eruption on a given area comes out at about the same time, but, in small-pox, exceptions to this rule are sometimes found—papules, vesicles, and incipient pustules are sometimes found intermixed, or at least not far from each other.

Umbilication.—Chicken-pox vesicles are sometimes, though rarely, umbilicated. Frequently, however, an apparent umbilication occurs when the vesicles begin to dry. In small-pox, umbilication is not constantly present. In some cases but few of the vesicles show it, and in other cases it remains unobserved.

Unilocular or Multilocular.—The observer who punctures a vesicle and forthwith pronounces the case chicken-pox is in great danger of going astray. In modified small-pox many of the vesicles will collapse when punctured at one side while perhaps some may not.

Odor.—Still more nonsensical is the rupturing of a vesicle or pustule in a questionable case, as I have seen done, and from the odor, or want of odor, stating that it is, or is not, a case of small-pox. There is no characteristic odor in mild cases of small-pox.

Vesicles on Palms and Soles and on Palate.—Vesicles appear on the palms of the hands and the soles of the feet in chicken-pox sometimes, but they are much more likely to come there in small-

pox, even in modified small-pox. In adults, vesicles, pustules, or the hardened plaques which follow, are almost pathognomonic of small-pox. Vesicles are more likely to be found on the hard or soft palate in small-pox than in chicken-pox. In small-pox they often appear in that location before they come out elsewhere. The triangular area on the inside of the arch of the foot is seldom free from the eruption even in irregular distributions of the small-pox.

Secondary Fever.—In many of the cases of small-pox, modified by vaccination or otherwise, there is no secondary fever. Many persons thus affected call themselves well as soon as the eruption comes out, and follow their usual vocation if allowed to do so.

Prodromal Eruption.—A prodromal rash, usually coming out on the second day, and before the appearance of the distinctive eruption, may throw the medical attendant off his guard. It may assume a roseolous or scarlatiniform character, or may resemble the eruption of measles. The parts covered by this eruption are usually the lower part of the abdomen, the inner surfaces of the thighs, and the chest walls below the axillæ. It may appear elsewhere. It is present in mild as well as in severe cases. It should be remembered in making a diagnosis.

Hemorrhagic and Purpuric Cases.—Extreme carefulness is required by the diagnostician or some of these cases may pass as simple, or non-infectious purpura. In some of them the subsequent appearance of the distinctive eruption of small-pox establishes the diagnosis; in many of the cases death occurs before the real eruption is out.

Above all things when called to a suspicious case, ample time should be taken in making the diagnosis. It is sometimes necessary to wait a day or two before a final, positive diagnosis can be made.

Review of Diseases for August, 1902.

NINETY-TWO COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

MEASLES.—Anson, 1 case; Beaufort, 2; Craven, 12; Currituck, a few; Davidson; Harnett, a few; Jones, 6; Mecklenburg; Onslow, 10; Randolph, a few; Rockingham, a few; Stokes, 1; Wilkes, 1—13 counties.

WHOOPING-COUGH.—Alamance, 12; Bladen, 2; Brunswick, several; Cabarrus, 12; Camden, 30; Caswell, several; Chatham; Chowan, several; Cleveland, several; Columbus, a few; Cumberland, a few; Currituck, a few; Gates; Harnett, many; Hertford, 20; Lenoir, many; Northampton, many; Randolph, a few; Robeson, several; Rockingham; Rutherford, 2; Sampson, many; Wake, 6; Washington, in all parts; Yancey, several—25 counties.

SCARLET FEVER.—Buncombe, 48; Burke, 15; Cabarrus, 8; Caswell, a few; Catawba, 2; Davie, 3; Forsyth; Gaston, several; Guilford, 1; Haywood, 11; Macon, 1; Mecklenburg; Polk, 1; Randolph, 4; Rowan, 1; Stanly, 1; Swain, 4; Wake, 2; Watauga, 12; Wilkes, a few—20 counties.

DIPHTHERIA.—Buncombe, 1; Cabarrus, 2; Cleveland, several; Craven, 11; Forsyth, 1; Gaston, several; Guilford, 1; Haywood, 11; Macon, 1; Mecklenburg; Polk, 1; Union, 1—I2 counties.

TYPHOID FEVER.—Alamance, 5; Alexander, 15; Alleghany, several; Anson, many; Ashe, 10; Beaufort, 5; Bladen, 11; Brunswick, 3; Buncombe, 6; Burke, 4; Cabarrus, 11; Caldwell, 6; Camden, 4; Carteret, several; Catawba, 4; Chatham, many; Chowan, in all parts; Clay, a few; Cleveland, a few; Columbus, 4; Craven, 16; Cumberland, a few; Davie, 2; Davidson, several; Durham, in many parts; Forsyth; Franklin; Gaston, several; Gates, 10; Granville, 19; Green, in all parts; Guilford; Halifax; Harnett, many; Haywood, 8; Henderson, 2; Hertford, 20; Iredell, in all parts; Jackson, 20; Jones, 8; Lenoir, a few; Lincoln, 8; McDowell, several; Macon, 1; Madison, 6; Martin, 5; Mecklenburg; Montgomery, 12; New Hanover, 7; Northampton, many; Onslow, 4; Pamlico, 1; Pasquotank, 3; Pender, many; Perquimans, 7; Person; Polk, 3; Randolph, general; Robeson, a few; Rockingham; Rowan, 2; Rutherford, 3; Sampson, many; Scotland, several; Stanly; Stokes, 5; Surry, 1; Swain, 3; Union, 20; Vance, a few in all parts; Wake, 22; Warren, 20; Watauga, 3; Wayne, a few; Wilkes, 3; Wilson, a few; Yadkin, 6; Yancey, a few—78 counties.

MALARIAL FEVER.—Alamance, general;

Beaufort: Bertie, many; Brunswick, general; Cabarrus, general; Chowan, general; Columbus; Craven, general; Dare, general; Franklin; Gates, general; Greene, general; Halifax; Johnston; Jones, very little; Lenoir, general; Montgomery: Northampton: Onslow, general; Orange, general; Pamlico, general; Pasquotank; Pender; Person; Randolph, general; Rockingham, general; Sampson, general; Scotland; Vance, general; Wayne—30 counties.

MALARIAL FEVER, PERNICIOUS.—Beaufort, 1; Brunswick, 1; Gates, 1; Johnston, 5; Jones, 1—5 counties.

MALARIAL FEVER, HEMORRHAGIC.—Craven, 1; Gates, 1; Northampton, 2; Onslow, 3; Pamlico, 2—5 counties.

BOWEL DISEASES.—Brunswick, Gates, Harnett, McDowell, Yadkin.

MUMPS.—Chatham, Hyde.

ROSEOLA.—Graham, in all parts.

TONSILLITIS.—Dare.

SMALL-POX.—Alamance, 4; Cabarrus, 1; Carteret, 1, died; Cleveland, 6; Craven, 9, two deaths—vigorous measures taken, isolation, quarantine, compulsory vaccination of those exposed; Forsyth, 20; Gaston, 20 to 25; Gates, 1; Henderson, 2; Mecklenburg, 4; Montgomery, 10; Nash, 1; Northampton, 11; Rockingham, 15; Rowan, 4; Rutherford, 2—16 counties.

CHOLERA, IN FOWLS.—Gates.

CHOLERA, IN HOGS.—Chowan, Gates.

INFLUENZA, IN HORSES.—New Hanover.

No diseases reported from Duplin, Edgecombe, Pitt and Transylvania. No reports received from Cherokee, Mitchell, Moore and Richmond.

Summary of Mortuary Reports for August, 1902.

(TWENTY-SIX TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	81,450	57,500	138,950
Aggregate deaths..	113	140	253
Representing temporary annual death rate per 1,000	16.6	29.2	21.8

Causes of Death.

Typhoid fever	10	11	21
Malarial fever.....	4	7	11
Diphtheria	2	0	2
Whooping-cough...	2	2	4
Pneumonia.....	1	0	1
Consumption	7	17	24
Brain diseases.....	6	6	12
Heart diseases.....	11	9	20
Neurotic diseases...	4	7	11
Diarrhoeal diseases	24	26	50
All other diseases..	35	54	89
Accident	5	1	6
Suicide..	2	0	2
	<hr/>	<hr/>	<hr/>
Deaths under five years.....	43	62	105
Still-born....	4	8	12

Mortuary Report for August, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.	
		RACES.	By Races.
		By Races.	Total.
Charlotte. Dr. F. O. Hawley.	{ W. 11,000 C. 7,200	18,200	32.9 23.3
Durham. Dr. N. M. Johnson.	{ W. 8,000 C. 5,000	13,000	25.5 40.8
Edenton. Dr. T. J. Hoskins.	{ W. 1,200 C. 1,800	3,000	0.0 13.3
Fayetteville. Dr. John D. MacRae.	{ W. 2,500 C. 2,300	4,800	9.6 14.3
Goldsboro. Geo. E. Hood, Mayor.	{ W. 3,500 C. 2,500	6,000	24.0 38.4
Greensboro. Jno. S. Michaux, C. C.	{ W. 6,100 C. 4,000	10,100	15.7 39.0
Henderson. Dr. F. R. Harris	{ W. 2,100 C. 1,700	3,800	22.8 7.1
Laurinburg. Dr. A. W. Hamer.	{ W. 900 C. 600	1,500	0.0 0.0
Lenoir. Dr. A. A. Kent.	{ W. 1,200 C. 300	1,500	10.0 0.0
Lexington. J. H. Moyer, Mayor.	{ W. 800 C. 500	1,300	0.0 0.0
Marion. Dr. B. A. Cheek.	{ W. 800 C. 400	1,200	0.0 0.0
Monroe. Dr. J. M. Blair.	{ W. 1,850 C. 600	2,450	6.5 0.0
Oxford. Dr. S. D. Booth.	{ W. 1,200 C. 1,100	2,300	0.0 65.4
Raleigh. T. P. Sale, Clerk B. H.	{ W. 8,000 C. 5,800	13,800	16.5 28.9
Reidsville. Jas. T. Smith, Cy. Cl.	{ W. 2,600 C. 1,300	4,200	12.4 36.9
Rocky Mount. Dr. G. L. Whimberley, Jr.	{ W. 1,600 C. 1,500	3,100	0.0 8.0
Salem. J. A. Vanee, Mayor.	{ W. 3,300 C. 350	3,650	18.2 0.0
Salisbury. Dr. W. W. McKenzie.	{ W. 3,000 C. 2,500	6,400	27.7 10.2
Southport. Dr. D. I. Watson.	{ W. 900 C. 500	1,400	0.0 71.0
Tarboro. Dr. L. L. Staton.	{ W. 2,000 C. 500	2,500	12.0 0.0
Wadesboro. Dr. J. H. Bennett.	{ W. 1,000 C. 700	1,700	36.0 34.3
Washington. Dr. Jno. G. Blount.	{ W. 3,000 C. 3,500	5,500	0.0 24.0
Waynesville. T. Stringfield, Mayor.	{ W. 1,000 C. 300	1,300	12.0 0.0
Weldon. J. T. Gooch, Mayor.	{ W. 700 C. 750	1,450	0.0 18.0
Wilmington. Dr. Chas. T. Harper.	{ W. 10,000 C. 11,000	21,000	16.8 30.5
Wilson. Dr. W. S. Anderson.	{ W. 2,000 C. 1,800	3,800	21.0 80.0

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

*In addition there were four deaths of non-residents, two white from typhoid fever, one white from malarial fever, one colored from typhoid fever.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. J. W. Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing- house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. Wm. P. S. Webb.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham.....	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. E. M. Gayle.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watauga.....	Dr. T. C. Blackburn.
Henderson.....	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton.		

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.

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J. L. LUDLOW, C. E.....Winston.

VOL. XVII.

OCTOBER, 1902.

No. 7.

HYGIENE OF SCHOOLS.

Never before in the history of our State has the interest in popular education been so intense or so widespread as it is to-day. It is therefore a most fitting time for the Board of Health to perform its duty in the premises by disseminating such information and advice in regard to the hygiene of the schools as may be pertinent. We are greatly encouraged in the performance of this duty by the cordial approval of His Excellency the Governor, whose zealous and eloquent crusade in behalf of the common schools has been such a potent factor in bringing about the present state of public opinion, and of our most efficient Superintendent of Public Instruction, Mr. Joyner. As the latter has kindly offered to send a copy of this number of the BULLETIN to every county superintendent, teacher and school com-

mitteeman in the State, we feel constrained to make our article as complete as our limits will permit.

While most of what we shall have to say will apply to all schools, we shall have chiefly in mind the ordinary country school and shall treat the subject from that point of view, endeavoring throughout to make our suggestions as practical and well fitted to the environment as possible.

We propose to consider the subject under the following heads: Location, Approaches, Construction of School-house as to lighting and ventilation, Sight and Hearing, Water Supply, Sanitary Conveniences, Recreation, General Remarks

LOCATION.

The school-house should always be located on an elevation, so that its imme-

diate vicinity is perfectly drained. A slight rise in the ground can generally be found in the flattest section; if not, the site should be carefully drained. A certain amount of shade is desirable, but not too much. Sunshine is essential to health. There should be no trees within 75 feet of the side from which the light comes. The location should be as attractive in appearance as is possible.

APPROACHES.

The roads on general principles ought to be good, but in their relation to the schools all roads leading thereto should have at least a good, dry foot-path, as most of the children walk, and every foot-log over a stream, no matter how small, in the hill country at least, should have a hand-rail. Among the tens of thousands of children attending the rural schools an appreciable number, we have no doubt, lose their lives every year directly or indirectly from sitting with wet feet. Two children were drowned in our immediate neighborhood a year ago crossing an unguarded foot-log during a freshet in what was ordinarily a tiny brook.

CONSTRUCTION OF SCHOOL-HOUSE.

One of the crying needs in our situation is better and more attractive school-houses, and in order to assist to some extent in supplying this need we present plans for houses of one, two and three rooms, the last named being intended to meet the movement towards concentrating the schools which has recently been inaugurated. These plans, which we cordially commend, were prepared at our request by the well known architects, Messrs. Barrett & Thomson of Raleigh, and offered by them as a contribution to the general cause. If desired in the in-

terest of economy they can be modified without essential alteration. From the hygienic point of view the two main features to be considered in the construction of the school-room are the lighting and the ventilation—the former for the protection of the eyes and the latter of the general health of the pupils.

Lighting.—The danger to the eyes of school children is the production of near-sightedness, due to an elongation of the eye-ball backward and insufficient light, is the most potent cause. We beg to quote an extract on this subject from an article on the Care of the Eyes and Ears prepared by the writer for the Board of Health at the request of its Secretary at that time, the lamented Dr. Wood:

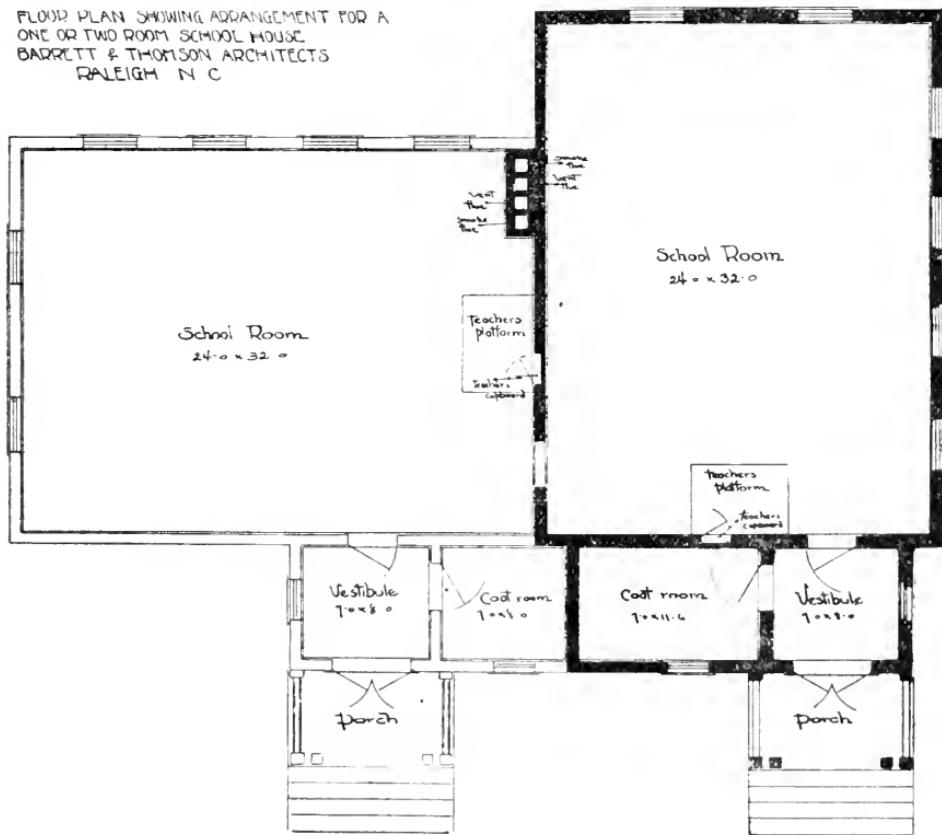
"It is now regarded as an established fact that the continued tension of the muscles of adjustment (accommodation and convergence) is the principal factor in the production of near-sight; and, as the nearer the object to the eyes the greater the tension or strain upon both these sets of muscles is, it follows that everything having a tendency to cause the undue approximation of objects on which the eyes are continuously used during childhood assists in the origination of this condition. I say 'in childhood,' because it nearly always begins during that period; and it does so for the reason that the tissues of all growing and immature animals are more soft and yielding than when they have attained the firmness of maturity—another reason for special attention to their general health at this time.

Since a large part of childhood, and particularly that part of it in which the eyes are used most on near objects, is passed in the school-room, it is there that we would naturally seek the causes

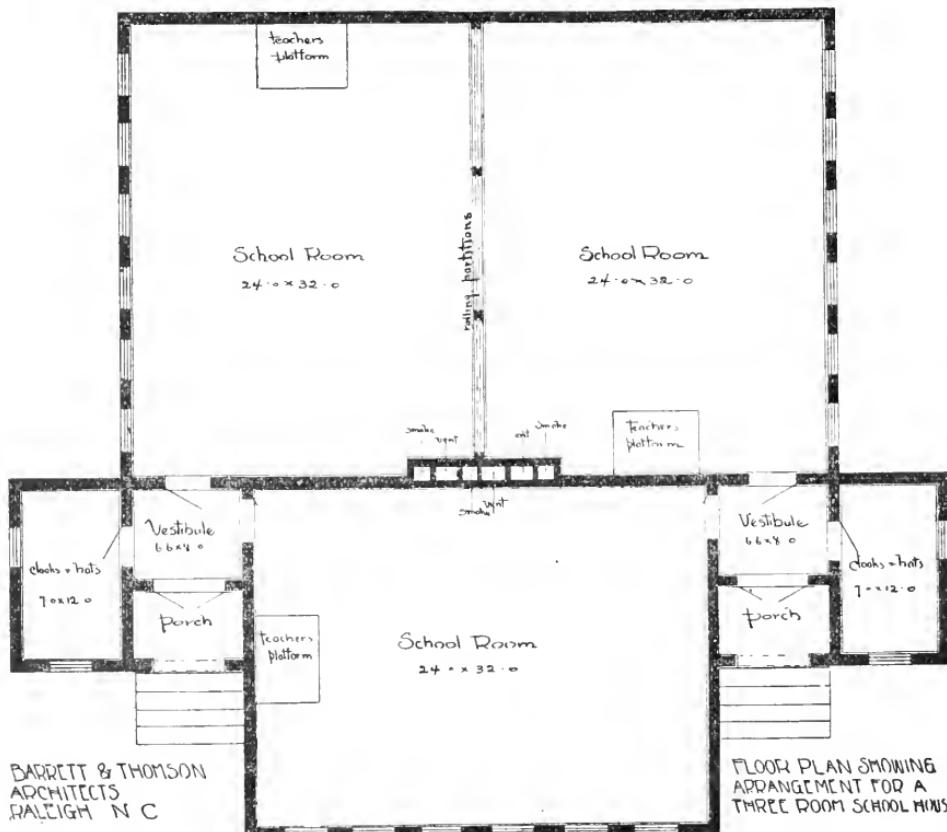
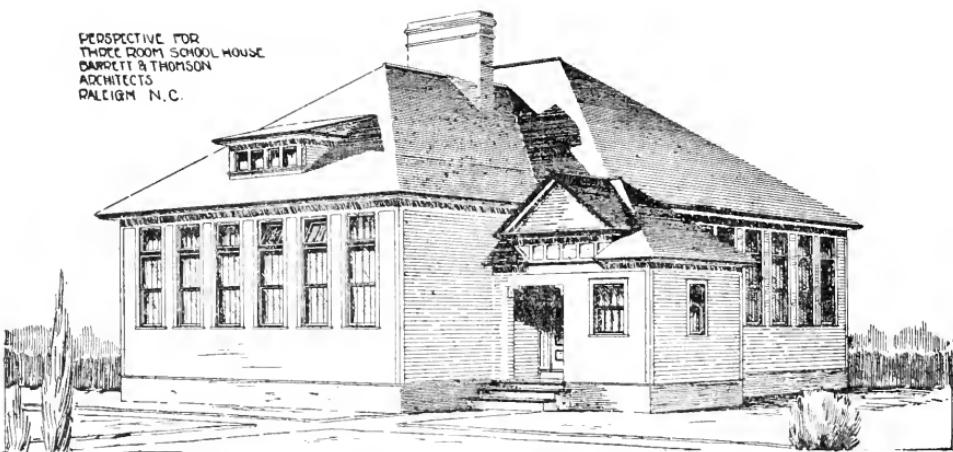
PERSPECTIVE
ONE OR TWO ROOM SCHOOL HOUSE
BARRATT & THOMSON ARCHITECTS
RALEIGH N C



FLOOR PLAN SHOWING ARRANGEMENT FOR A
ONE OR TWO ROOM SCHOOL HOUSE
BARRATT & THOMSON ARCHITECTS
RALEIGH N C



PERSPECTIVE FOR
THREE ROOM SCHOOL HOUSE
BARRATT & THOMSON
ARCHITECTS
RALEIGH N.C.



of this trouble. And it is there that they are generally found. School children are often compelled to hold their books too near—that is, nearer than ten inches—because the amount of light is insufficient. This question of plenty of light of good quality (the best is direct from a northern sky) in the school-room is of the highest importance, and cannot be impressed too deeply upon those having such matters in charge. In a general way, it may be said that there should always be enough light to enable a child to read on a moderately clear day fine print in the darkest corner of the room at the distance of a foot. And the direction from which it comes is also important. Preferably, it should come from the left and above, so that, while illuminating the page, it may not fall upon the eyes nor cast a shadow of the hand in writing. The next best direction is from behind, then from the right, but never from in front. The children should always look at a dead wall. I append an admirable statement of the 'Requirements of the Model Schoolroom,'* copied in the *Sanitarian* for October, 1885, from *City School Systems of the United States*, and earnestly commend it to all school boards and others having in charge the building of school-houses. It need not be more expensive than the ordinary plan, except in the matter of windows; and I am sure no one will grudge the children under his care in this respect the very slight additional cost necessary to supply them with

* * * REQUIREMENTS OF THE MODEL
SCHOOL-ROOM.

"(1) *Shape*.—It should be oblong, the width being to the length about as three to four, with the teacher's platform at one end.

"(2) *Size*.—For primary or grammar school, with register of 54 pupils and attendance of about 50, the room should be about 33 feet long, 25 wide, and 13 high, which gives practically upward of 200 cubic feet of air and 16½ square feet of floor-space to each pupil.

"(3) *Lighting*.—Four windows on the left of the pupils as they sit, the tops being square and not more than six inches from the ceiling, the bottoms being at least three and a half feet from the floor, equally spaced, not grouped, with transom sashes hung at the base above the sliding sashes. A window or two in addition at the back is admissible. The size of the windows on the side, taken collectively, should equal at least one-sixth of the floor-space. The highest authorities in school hygiene require 300 or 350 square inches of glass for each pupil.

"(4) On the side opposite the windows two doors, with transom windows above hung at the base, and between these transom windows, and on the same line, two more windows of the same kind and hung in the same manner.

"(5) The walls should be slightly tinted, but not the ceiling.

"(6) A blackboard may be between the doors, but a sliding blackboard back of the teacher's platform, or a portable one on the platform, in accordance with the German idea, would perhaps be better than the profusion of wall blackboards now in vogue among us.

"(7) *Location of Seats*.—The main rule to be observed in the placing of the seats is to carry them as far as possible toward the window side of the room, as far as possible from the opposite side; the aim being to make the arrangement such that the distance of the outer row of desks from the windows shall not exceed once and a half the height of the top of the window from the floor.'

"Proper height of seats and desks for different ages, as approved by the Boards of Health of New York and Chicago:

"From 7 to 9 years, top of desk 23 inches, front of seat 12½ inches.

"From 9 to 11 years, top of desk 24 inches, front of seat 12¾ inches.

"From 12 to 14 years, top of desk 25¾ inches, front of seat 14 inches.

"From 15 to 18 years, top of desk 27½ inches, front of seat 15¼ inches."

light enough for the comfortable and safe use of their eyes.

"Sometimes the proportion between the height of the seat and that of the desk is such as to bring the book too near, as a low seat with a high desk.

"Occasionally the seat has no back, so that from sheer fatigue the child is constrained to lean forward on the desk to rest himself.

"Any of these things may cause this dangerous approximation, and not infrequently it is made more hurtful by a system of instruction which requires it to be kept up continuously for hours at a time.

Ventilation.—An abundance of pure fresh air is of the greatest importance to the growing child. To secure this without draughts is the problem to be solved. The ideal solution for the country school-house is obtained by the use of a jacketed stove and a ventilating flue in the same stack with the smoke-flue having an opening at the floor. The fresh air, conducted from outside by a tin pipe or wooden box, is introduced into the room through a hole in the floor immediately under the stove. The air as it passes between the hot stove and the jacket, which goes down to the floor all around and envelopes the stove quite closely, is warmed and poured into the room at the top. The increase in the air-pressure resulting therefrom forces the foul air out through the opening at the bottom of the ventilating flue, the outward current being increased by the warming of the ventilating flue by the smoke flue from which it is separated by a partition made as thin as possible with that object in view. By this method there is secured a diffusion throughout the whole room of pure warm air, and the pressure not only

forces the cold foul air which lies on the floor through the ventilating flue, but also by seeking an exit in every direction stops the draughts through the cracks around the windows and doors—the cause of many catarrhal troubles. Another advantage in this method is that the heat is evenly distributed to all the pupils, instead of scorching those nearest the stove while those farthest off are suffering with cold. If this arrangement is unattainable, the room can be ventilated by letting down a little way the transoms at the top of the windows which are hinged at the bottom, so that the entering cold air, deflected upward against the ceiling, is "sprinkled" uniformly through the room instead of pouring on the children in a solid stream. The same effect can be obtained with ordinary windows by raising the lower sash a few inches and placing thereunder a board cut to fit.

Heating is intimately associated with ventilation. The temperature should be kept as even as possible, between 68 and 70 degrees. A temperature much higher than that is debilitating to both mind and body and makes the children tender and more susceptible to colds. There should be a thermometer in every school-room.

SIGHT AND HEARING.

Sight.—The sight of every child should be tested at the beginning of the term. This can be easily done with accuracy by means of the test-types accompanying this. Detach the sheet and tack it up against the end wall of the room in a good light. Seat the child at a distance of 20 feet from it. Have him close first one eye and then the other and call the letters. If he can read No. XX at 20 feet he has standard vision; if No. XXX,

fair vision: and if only No. XL, still useful vision. The test for near vision is made by having him read the Jaeger's test-types to be found on another page, at not less than 1 foot. It should be noted that not a few have standard vision, but owing to some error in the refraction of the eye, see under a strain, so that if a child complains of his eyes, and especially of headache after study, he almost certainly has some error and needs glasses, as do those whose sight is below the standard in most cases. Children with defective sight should be always assigned to well lighted desks as near as possible to the blackboard.

Hearing.—The hearing of every child should also be tested. A simple and practical test would be for the teacher to station herself at one end of the room and the child at the other, with his back to her, so that he cannot watch her lips, and talk to him, having him repeat the words after her to be sure that he hears accurately. If he fails to hear a whisper gradually raise the voice until he repeats correctly. The calling of numbers is a convenient way. A child with good hearing ought to understand an ordinary whisper at that distance. Those found hard of hearing should be given front seats nearest the teacher. Deafness in children is usually caused by a "rising in the head" (suppurative inflammation of the middle ear, with perforation of the drum-head), or a growth in the upper part of the throat behind the soft palate and back part of the nose, and therefore out of sight, called "adenoids"—similar to and generally but not always associated with enlargement of the tonsils. A pale, dull, stupid-looking child who breathes with his mouth open and snores and is restless in his sleep, whether deaf

or not, is almost surely the subject of adenoids. Owing to this obstruction the circulation of the brain is interfered with, nor does he get air enough into his lungs, and in consequence his mind is often dull and his general health is apt to be impaired. The discoverer of this condition and the remedy for it, Dr. Meyer of Copenhagen, is regarded as one of the great benefactors of the human race, and has had a monument erected to his memory by a world-wide subscription. A simple operation literally works wonders in these cases.

Before leaving this subject we beg to say that the sight and hearing of teachers ought to be tested by the county superintendent, as imperfection in either sense would be a serious drawback to her efficiency.

WATER SUPPLY.

Pure water, pure air and good food constitute the tripod upon which good health rests. It is very important, therefore, that every means should be taken to prevent the contamination of the well or spring. The earth around the well should be graded so that the surface water may run away from and not towards the well. The open well with bucket is not so safe as a pump because of the danger of infecting the water by handling the bucket. It staggers the imagination to conceive of anything more unsanitary than the hand of a natural healthy boy. No accumulation of filth should be permitted within a hundred feet of the well or above the level of the spring.

SANITARY CONVENiences.

Such sanitary conveniences as are feasible should always be provided, not only in the interest of health but of decency

No. 1.

The eye is the organ of vision, and resembles a photographer's camera in its construction. The iris is the diaphragm, with a pupillary opening in the center, which adjusts itself to the amount of light by dilating or contracting. Like the camera, the vitreous chamber is darkened inside by the pigmented layer of the choroid. The retina, or nervous layer, is the sensitive plate of the camera, and receives the impression or image of the object. The crystalline lens is so adjusted by the aid of the ciliary muscle as to bring the light to a focus

No. 2.

on the retina. In order to accomplish its function successfully all the media of the eye must be transparent. These media are from before backwards the cornea, the aqueous humor, the crystalline lens, and the vitreous humor. Any hardness of one or more of these media will, of course, interfere with the visual function. The first essential, then, of perfect vision is an absolute transparency of all the media, and the second is an accurate focusing of the rays of light on

No. 3.

the retina through the adjustment of the crystalline lens. These impressions when received upon the retina are gathered up and concentrated, as it were, in the optic nerve, through which they are carried to the brain. In short-sighted persons the eye-ball is too long, and the light rays come to a focus in

No. 4.

front of the retina, while in far-sighted persons the eye-ball is too short, and the focal point, therefore, falls behind the retina. In either case a blurred image is received upon the retina. In order to

No. 6.

overcome this blurring, and thus correct the optical defect, the eye unconsciously makes an effort by which the ciliary muscle acts on the lens. This effort explains why eye-strain may

No. 8.

cause pain and discomfort. An optical correction for the refractive error is found in spectacle lenses. In near-sightedness a

No. 10.

concave spherical lens will cause the focal point to recede until it falls directly on the retina;

No. 12.

while in far-sightedness

and civilization. A clean and comfortable privy is a long step in civilization to those whose habits are near akin to those of the wild animals of the forest. They should be located for the two sexes in different directions from the school-house and screened with shrubbery or vines. They should be provided with a box of dry earth and a scoop or a shingle, and each evacuation should be immediately covered with the dry earth. They should be cleaned out every Saturday. The use of tubs would facilitate this.

RECREATION AND EXERCISE.

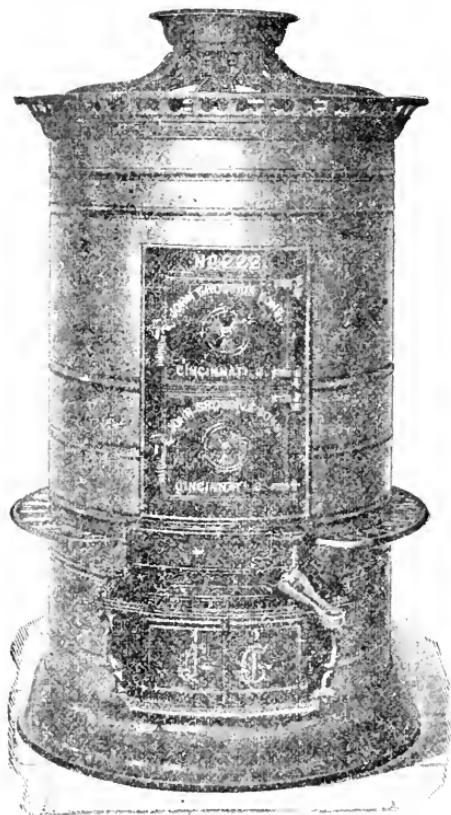
To the growing child active exercise in the open air is all-important. The draught should be put on and the vital fires stirred and made to burn brightly. Children ought to run and shout, thereby developing both heart and lungs. Outdoor games should be encouraged. Mere exercise, work, is good, but to obtain the best results the recreation feature must be added—the exercise must be interesting and enjoyable. A good play-ground should therefore always be provided and it ought to contain a ball-field. We venture to say that the expenditure by the committee of a very few dollars for the

amusement of the children would increase both enrollment and attendance. Many a parent would send his child to school if he was anxious to go, when otherwise he would not.

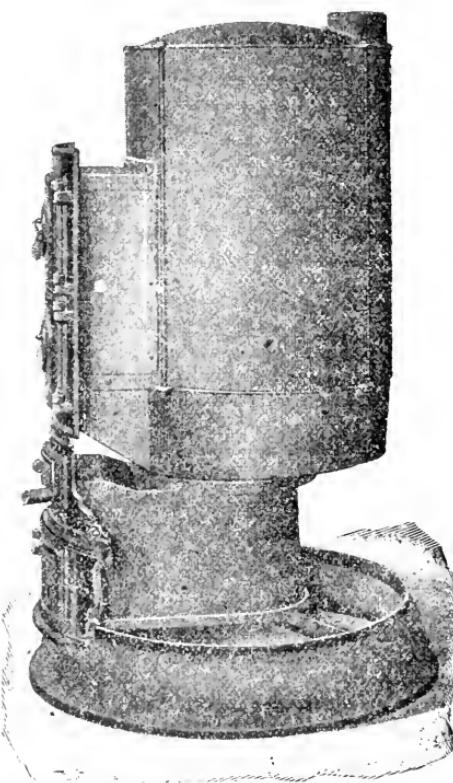
GENERAL REMARKS.

The teacher ought to realize her responsibility to the children in the matters pertaining to their health. In addition to having the principles above set forth observed as well as possible, she should see to it that the law in regard to infectious diseases (see page 85) is obeyed at least in so far as attendance from infected households is concerned. A child with sore throat, particularly if the least feverish, should be sent home, there to remain until it has passed off or he brings a certificate from the family physician as to its innocence. By taking this precaution the spread of diphtheria and scarlet fever may often be prevented. In rainy weather the teacher should see that wet feet and damp garments are well dried before sending children to their seats. In a word, a judicious mixture of the mother with the pedagogue would often make for health.

THE VENTILATING STOVE.



OUTSIDE VIEW.



INSIDE VIEW.

The above shows a jacketed or ventilating stove for burning wood. Same size for coal can be obtained. Price, \$32.50 f. o. b. Cincinnati.

The air-duct outside opens through the floor under stove. The air-duct should have its outer end bent up at a right angle and should be provided with a valve to regulate the inflow when, owing to a very low temperature or a high wind blowing into its mouth, the

air passes through the stove insufficiently warmed. The fresh air is warmed as it passes between the hot cast-iron stove and its sheet-iron envelope or "jacket," and passing out of the top, is distributed through the room, forcing the foul air out of the ventilating flue adjoining the smoke flue with opening at floor. This vent flue should be at least 12x12 inches.

The Health Law in its Relation to Schools.

[Chapter 214, Laws of 1892, sections 11 (in part), 12 and 22, as amended in 1901.]

* * * The boards of health of cities and towns wheresoever organized, and where not the mayors of the same, and in other cases the county superintendent of health, shall give the school committee of the city or town, the principals of private schools and the superintendent of public instruction of the county, when the schools are in session, notice of all such cases of contagious diseases reported to them according to the provisions of this act. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and subject the delinquent upon conviction to a fine of not less than ten nor more than fifty dollars.

SEC. 12. The school committees of public schools, superintendents of graded schools and the principals of private schools shall not allow any pupil to attend the school under their control while any member of the household to which said pupil belongs is sick of either small-pox, diphtheria, measles, scarlet fever, yellow fever, typhus fever or cholera, or during a period of two weeks after the death, recovery or removal of such sick person; and any pupil coming from such household shall be required to present to the teacher of the school the pupil desires to attend a certificate from the attending physician, city health officer or county superintendent of health of the facts necessary to entitle him to admission in accordance with the above regulations. A wilful failure on the part of any school committee to perform the

duty required in this section shall be deemed a misdemeanor, and upon conviction shall subject each and every member of the same to a fine of not less than one nor more than twenty-five dollars: *Provided*, that the instructions in accordance with the provisions of this section given to the teachers of the schools within twenty-four hours after the receipt of each and every notice shall be deemed performance of duty on the part of the school committee. Any teacher of a public school and any principal of a private school failing to carry out the requirements of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one nor more than twenty-five dollars.

SEC. 22. *Vaccination*—On the appearance of a case of small-pox in any neighborhood all due diligence shall be used by the superintendent of health that warning shall be given, and all persons not able to pay shall be vaccinated free of charge by him, and the county superintendent shall vaccinate every person admitted into a public institution (*jail, county home, public school*) as soon as practicable, unless he is satisfied upon examination that the person is already successfully vaccinated; the money for vaccine to be furnished by the county commissioners. The authorities of any city or town or the sanitary committee of any county may make such regulations and provisions for the vaccination of its inhabitants and impose such penalties as they may deem necessary to protect the public health; and any person violating such instructions shall be guilty of a misdemeanor and may be fined not exceeding fifty dollars or imprisoned not exceeding thirty days.

Sanitary Notes.

As this issue of the BULLETIN will go to an unusually large number of intelligent and influential readers, we take advantage of the opportunity to call attention very briefly to a few of the salient points in the prevention of the more important communicable diseases.

SMALL-POX.

Small-pox is still prevalent in the State. There is practically only one reliable preventive of its spread, and that is *vaccination*. Death or serious injury from vaccination is so extremely rare that it should not be taken into account. The number of deaths from small-pox in the German Empire in 1871 was 140,000. Compulsory vaccination of every child in its first and again in its tenth year was instituted. The number of deaths in a much larger population (50,000,000) in 1897 was 16. Teachers should encourage children to be vaccinated.

TUBERCULOSIS OR CONSUMPTION.

Tuberculosis is unquestionably an infectious or communicable disease. Its cause is a germ known as the *bacillus tuberculosis*. Myriads of these germs exist in the expectoration of consumptives. The dry sputum becomes a poisonous dust, and floating in the air is inspired, setting up the disease in the new lung. As long as the expectoration remains moist the germs cannot float in the air. The main thing in prevention, therefore, is to so manage the expectoration as to prevent its reaching the form of dust. Consumptives should never spit on the floor or on a side-walk. A spittoon containing some disinfectant fluid or at least water should always be used when possible—when abroad a special spit-up or bits of rag

that can be burned on returning to the house. Consumptives should never be kissed on the mouth. Rooms occupied by consumptives should always be disinfected. We know of an instance in this State in which every member of a healthy family of ten who moved into a house in which consumptives had previously lived died of that disease. This disinfection is extremely important. Much more could be said on this vital subject if space permitted.

TYPHOID FEVER.

Typhoid fever is also caused by a germ, *bacillus typhosus*. It is found in the bowel discharges of one sick of the disease. It is transmitted through the drinking water or by flies, which having crawled over the *dejecta* afterwards fly into the kitchen or dining-room, and crawling over the food infect it with their feet. The poison is always swallowed. The best method of preventing the spread of the disease is to kill the germs while they are in reach. The discharges should be immediately covered, disinfected as soon as possible and then buried. When typhoid fever appears in a family the drinking water should be boiled, at least until it is analyzed and found pure.

MALARIA.

Malarial fevers are caused by a microscopic parasite which feeds on the red corpuscles of the blood. It has been demonstrated beyond question that this parasite is chiefly, if not solely, transmitted by a certain variety of mosquitoes called *anophelis*. The prevention of malaria, therefore, is accomplished by the prevention of mosquitoes. They breed to some extent in large ponds, but mostly in small stagnant pools. As they rarely fly farther than a half-mile, all such

pools within that radius should be drained when possible. When this cannot be done, they should be covered with oil once every fortnight during the warm season. Wire screens over doors and windows, at least bed-rooms, are advisable.

QUARANTINE AND DISINFECTION.

All cases of the more serious infectious diseases, small-pox, diphtheria and scarlet fever, should be promptly isolated and quarantined. No one except the physician and the nurse should be admitted to the room. After recovery the patient should be well washed with warm water and soap from top to toe, including the hair, followed by a disinfectant solution—corrosive sublimate 1 part to 2,000 of water, before being allowed liberty. The room and all its contents well spread out, should immediately thereafter be thoroughly disinfected. This is best done by formaldehyde gas. The law requires both the householder and the family physician to notify the superintendent of health within twenty-four hours of the occurrence of a case of either of the diseases mentioned, and it then becomes his duty to see that the house is placarded with the name of the disease as a warning to outsiders, and that the quarantine and disinfection are properly carried out.

Review of Diseases for September, 1902.

EIGHTY-EIGHT COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few phy-

sicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named:

MEASLES.—Chatham; Jones, a few; Person, a few; Rockingham.

WHOOPING-COUGH.—Beaufort, 4; Camden, 10; Cumberland, a few; Dare, 7; Gates; Harnett, a few; Hertford, 10; Lenoir, many; Mecklenburg; Pamlico, several; Robeson, epidemic; Rockingham; Sampson, many; Union, 10; Wake, 4; Washington, 8; Yancey, several—17 counties.

SCARLET FEVER.—Alexander, 6; Buncombe; Burke, 2; Cabarrus, 21; Caswell, several; Catawba, 2; Craven, 2; Davie, 1; Forsyth, several; Gaston; Guilford, 4; Iredell, 12; Jackson, a few, mild; Lenoir, 1; Lincoln, 3; Madison, 50; Mecklenburg; Mitchell; Nash, 1; Northampton, several; Orange, 1; Person, 1; Polk, 1; Randolph, several; Rowan, 1; Rutherford, 3; Swain, many; Union, 3; Watauga, 20; Yancey, a few—30 counties.

DIPHTHERIA.—Alexander, 4; Brunswick, 5; Cabarrus, 4; Catawba, 2; Cleveland, several; Craven, 6; Dare, 2; Forsyth, 1; Gaston; Graham, 4; Granville, 3; Jones, 9; Lenoir, several; Macon, 1; Mecklenburg; Mitchell; New Hanover, 2; Northampton, 5; Pamlico, 2; Polk, 1; Rowan, 1; Union, 2; Wilkes, 3; Yadkin, 5—24 counties.

TYPHOID FEVER.—Alamance, 25; Alexander, 6; Alleghany, 6; Anson, several; Ashe, 15; Beaufort, 4; Bladen, 20;

Brunswick, 7; Buncombe; Burke, 2; Cabarrus, 12; Caldwell, 6; Camden, 2; Caswell, 3; Catawba, 4; Chatham, many; Cherokee, 12; Chowan, 3; Clay, a few; Cleveland, several; Columbus, 4; Craven, 2; Cumberland, a few; Currituck, a few; Davidson, several; Forsyth, several; Franklin, many; Gates, 1; Graham, 1; Granville, 4; Greene, 10; Halifax; Harnett, 12; Haywood, 12; Hertford, 8; Iredell, many; Jackson, 10; Johnston, many; Jones, 4; Lenoir, a few; Lincoln, 6; Madison, 3; Martin, 6; Mecklenburg; Mitchell; Nash, 3; New Hanover, 5; Northampton, many; Onslow, 4; Orange, 4; Pasquotank, 3; Pender, several; Person; Polk, 6; Randolph, several; Robeson, several; Rockingham, several; Rowan, 6; Rutherford, 2; Sampson, in all parts; Scotland, 15; Stokes, 15; Surry, 6; Swain, 8; Union, 20; Wake, 21; Warren, 8; Watauga, 10; Wilkes, 5; Yadkin, 10; Yancey—72 counties.

MALARIAL FEVER.—Alamance, general; Beaufort, mild, in many parts; Brunswick; Caswell; Chowan; Craven, general; Currituck, general; Durham, general; Franklin; Gaston; Gates, a few; Greene, general; Halifax; Hertford; Johnston; Jones; Lenoir, general; Mecklenburg, general; Northampton; Onslow, general; Orange; Pamlico, general; Pasquotank; Pender; Person; Robeson; Rockingham, general; Sampson, general; Scotland; Wake—31 counties.

MALARIAL FEVER, PERNICIOUS.—Chowan, 1; Johnston, 5; Pamlico, 1.

MALARIAL FEVER, HEMORRHAGIC.—Hertford, 1; Northampton, 6; Onslow, 2; Pasquotank, 1; Robeson, 1; Wake—6 counties.

BOWEL DISEASES.—Currituck.

INFLUENZA.—Brunswick; Cherokee; Randolph.

MUMPS.—Currituck, a few; Dare; Hyde, in all parts; McDowell; Moore.

PNEUMONIA.—Alleghany, a few; Cherokee, a few.

SMALL-POX.—Alamance, 1; Cabarrus, 1; Cleveland, 2; Craven, 12; Forsyth, 125; Gaston, a few; Gates, 5, all in one family; Guilford, 7; McDowell, 10; Mecklenburg, 16; Northampton, 9; Randolph, 1; Rockingham, 8; Rowan, 12; Rutherford, 3; Surry, 4; Union, 9—17 counties.

CHOLERA, IN HOGS.—Chowan, nearly all dead now; Martin; Northampton; Onslow.

HYDROPHOBIA, IN DOGS.—Wilkes.

No diseases reported from Carteret, Duplin, Edgecombe, Pitt and Wilson.

No reports received from Henderson, Montgomery, Perquimans, Richmond, Transylvania, Vance and Wayne.

Summary of Mortuary Reports for September, 1902.

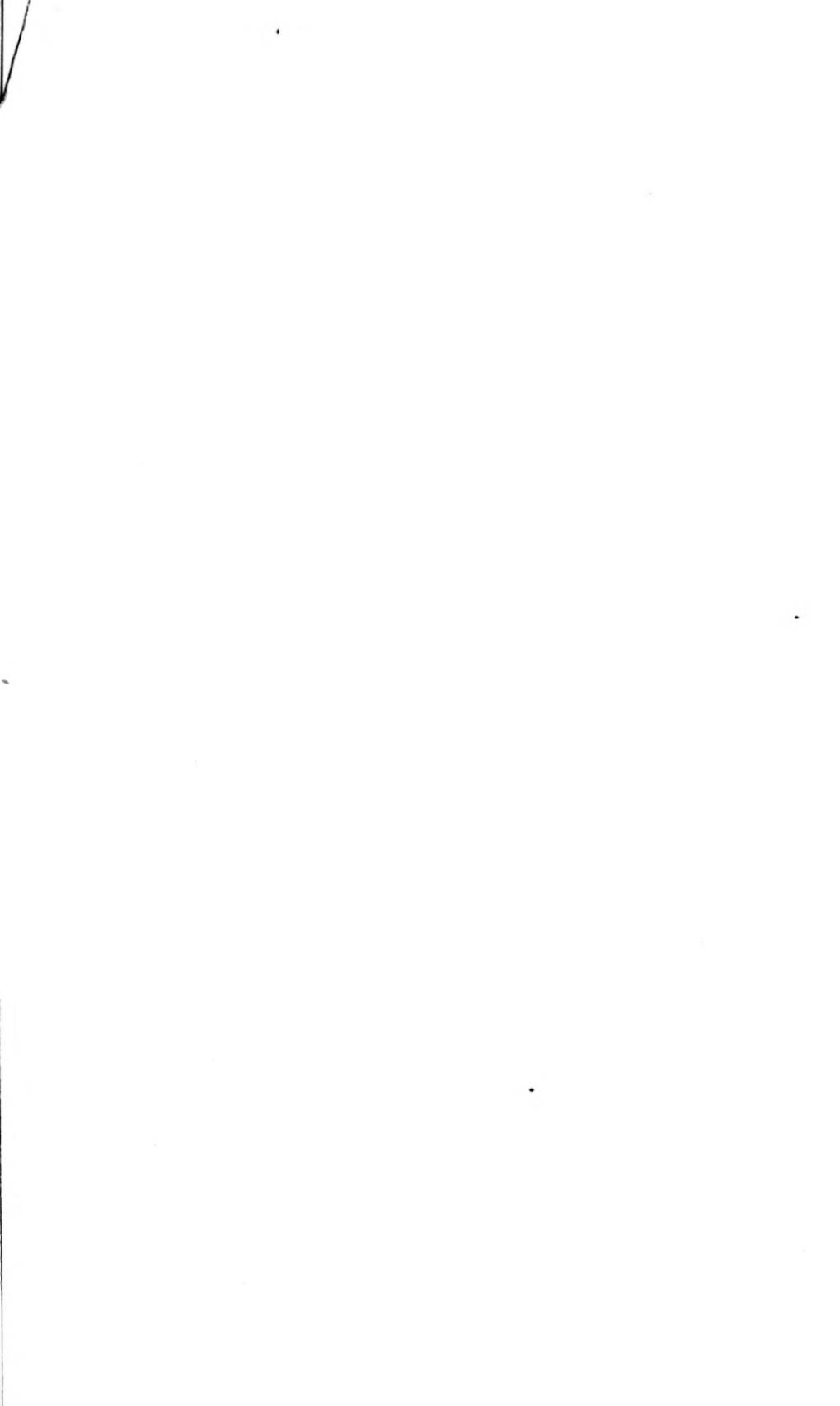
(TWENTY-SIX TOWNS).

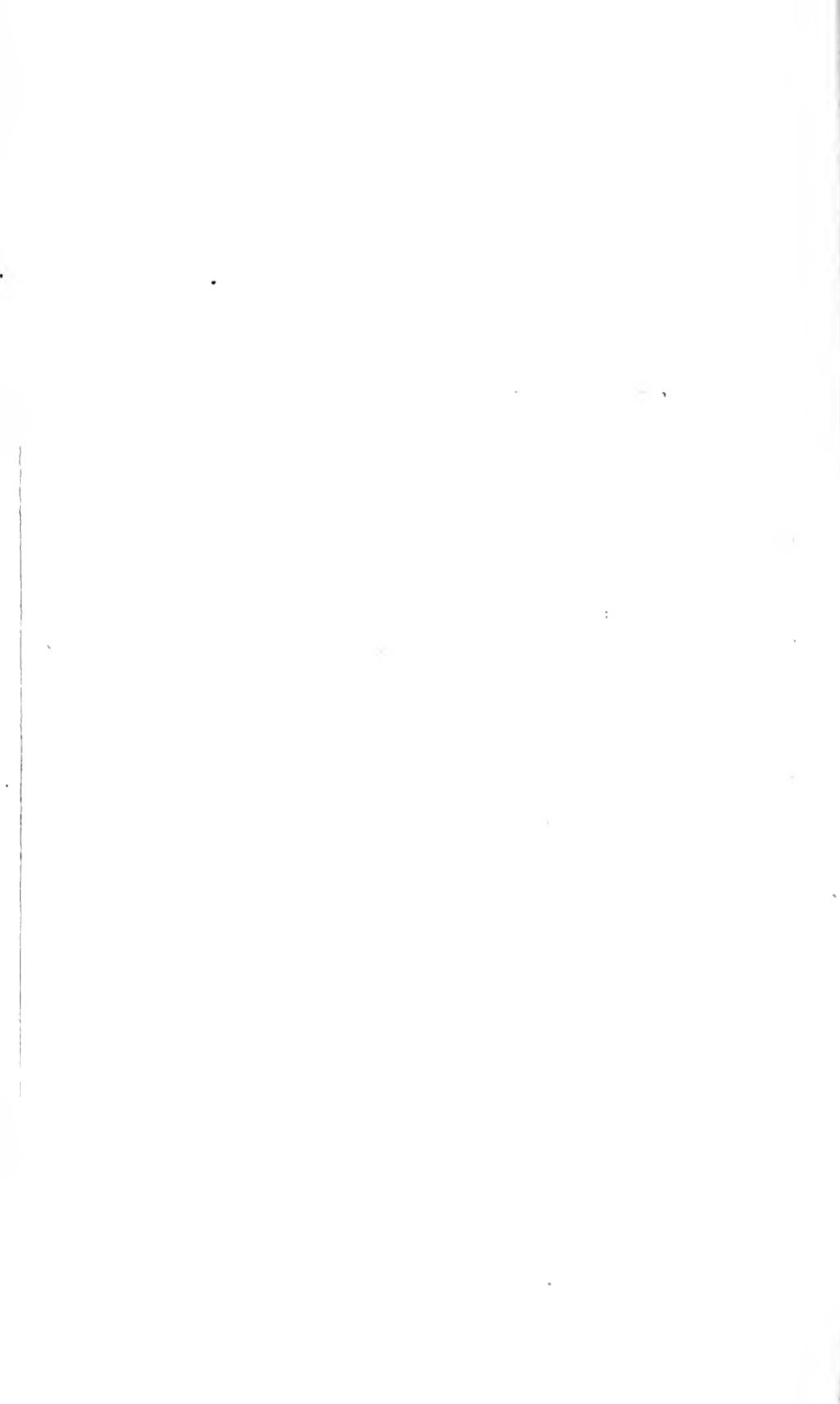
	White.	Col'd.	Total.
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Aggregate population.....	83,300	58,850	142,150
Aggregate deaths..	108	157	265
Representing temporary annual death rate per 1,000	15.5	32.0	22.3

Causes of Death.

Typhoid fever	11	7	18
Malarial fever.....	5	19	24
Diphtheria	1	1	2
Whooping-cough...	0	3	3
Measles.....	0	2	2
Pneumonia.....	1	1	2
Consumption	9	22	31
Brain diseases.....	8	7	15
Heart diseases.....	8	13	21
Neurotic diseases...	3	7	10
Diarrheal diseases	19	19	38
All other diseases..	36	53	89
Accident	6	3	9
Suicide..	1	0	1
	108	157	265
Deaths under five years.....	30	52	82
Still-born.....	5	7	12





MORTUARY REPORT FOR SEPTEMBER, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.										Total Deaths under five years.	Still-born.
		RACES.			By Races.			By Races.			By Races.		
				Total.				Total.					
Charlotte	W. 11,000	18,200	12.0	23.1	1	1	1	1	1	1	1	1	1
Dr. F. O. Hawley.	C. 7,200	40.0	40.0	1	1	1	1	1	1	1	1	1	1
Durham	W. 8,000	13,000	28.5	31.4	2	2	2	1	1	1	1	1	1
Dr. N. M. Johnson.	C. 5,000	36.0	36.0	1	1	1	1	1	1	1	1	1	1
Edenton	W. 1,200	3,900	0.0	0.0	1	1	1	1	1	1	1	1	1
Dr. T. J. Hoskins.	C. 1,800	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Fayetteville	W. 2,500	4,800	9.6	12.5	1	1	1	1	1	1	1	1	1
Dr. John D. MacRae.	C. 2,300	15.6	15.6	1	1	1	1	1	1	1	1	1	1
Goldsboro	W. 3,500	6,100	10.3	15.7	1	1	1	1	1	1	1	1	1
Geo. E. Hood, Mayor.	C. 2,600	23.1	23.1	1	1	1	1	1	1	1	1	1	1
Greensboro	W. 6,100	10,100	3.9	23.8	1	1	1	1	1	1	1	1	1
Jno. S. Michaux, C. C.	C. 1,000	54.0	54.0	1	1	1	1	1	1	1	1	1	1
Henderson	W. 2,100	3,800	5.7	9.5	1	1	1	1	1	1	1	1	1
Dr. F. R. Harris.	C. 1,700	14.1	14.1	1	1	1	1	1	1	1	1	1	1
Laurinburg	W. 900	1,500	53.3	56.0	2	2	2	2	2	2	2	2	2
Dr. A. W. Hamer.	C. 600	60.0	60.0	1	1	1	1	1	1	1	1	1	1
Lenoir	W. 1,200	1,500	0.0	0.0	1	1	1	1	1	1	1	1	1
Dr. A. A. Kent.	C. 300	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Lexington	W. 800	1,300	0.0	0.0	1	1	1	1	1	1	1	1	1
J. H. Moyer, Mayor.	C. 500	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Marion	W. 800	1,200	0.0	20.0	1	1	1	1	1	1	1	1	1
Dr. B. A. Cheek.	C. 400	60.0	60.0	1	1	1	1	1	1	1	1	1	1
Monroe	W. 1,900	2,500	0.0	0.0	1	1	1	1	1	1	1	1	1
Dr. J. M. Blair.	C. 600	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Oxford	W. 1,200	2,300	30.0	20.9	1	1	1	1	1	1	1	1	1
Dr. S. D. Booth.	C. 1,100	10.9	10.9	1	1	1	1	1	1	1	1	1	1
Raleigh	W. 8,000	13,800	15.0	20.0	1	1	1	1	1	1	1	1	1
T. P. Sale, Clerk B. II.	C. 5,800	26.9	26.9	1	1	1	1	1	1	1	1	1	1
Reidsville	W. 2,900	4,200	20.7	34.3	1	1	1	1	1	1	1	1	1
Jas. T. Smith, Cy. Cl.	C. 1,300	64.6	64.6	1	1	1	1	1	1	1	1	1	1
Rocky Mount	W. 1,600	3,100	15.0	11.6	1	1	1	1	1	1	1	1	1
Dr. G. L. Wimberley, Jr.	C. 1,500	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Salem	W. 3,300	3,650	18.2	16.4	1	1	1	1	1	1	1	1	1
J. A. Vance, Mayor.	C. 350	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Salisbury	W. 3,900	6,400	30.8	24.4	2	2	2	2	2	2	2	2	2
Dr. W. W. McKenzie.	C. 2,500	14.4	14.4	1	1	1	1	1	1	1	1	1	1
Southport	W. 900	1,400	0.0	0.0	1	1	1	1	1	1	1	1	1
Dr. D. J. Watson.	C. 500	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Tarboro	W. 2,000	2,500	12.0	19.2	1	1	1	1	1	1	1	1	1
Dr. Wm. J. Thigpen.	C. 500	48.0	48.0	1	1	1	1	1	1	1	1	1	1
Wadesboro	W. 1,000	1,700	12.0	14.1	1	1	1	1	1	1	1	1	1
Dr. J. H. Bennett.	C. 700	17.1	17.1	1	1	1	1	1	1	1	1	1	1
Washington	W. 3,000	5,500	20.0	17.4	1	1	1	1	1	1	1	1	1
Dr. Jno. G. Blount.	C. 2,500	14.4	14.4	1	1	1	1	1	1	1	1	1	1
Waynesville	W. 1,000	1,300	12.6	9.2	1	1	1	1	1	1	1	1	1
T. Stringfield, Mayor.	C. 300	0.0	0.0	1	1	1	1	1	1	1	1	1	1
Weldon	W. 700	1,500	17.1	16.0	1	1	1	1	1	1	1	1	1
J. T. Gooch, Mayor.	C. 800	15.0	15.0	1	1	1	1	1	1	1	1	1	1
Wilmington	W. 10,000	21,000	19.2	32.0	2	2	2	2	2	2	2	2	2
Dr. Chas. T. Harper.	C. 11,000	13.6	13.6	2	2	2	2	2	2	2	2	2	2
Wilson	W. 3,800	6,800	15.8	31.8	1	1	1	1	1	1	1	1	1
Dr. W. S. Anderson.	C. 3,000	52.0	52.0	2	2	2	2	2	2	2	2	2	2

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.

*In addition one non-resident, white, died of typhoid fever.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northhampton....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. Oscar Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing-
Columbus.....	Dr. I. Jackson.	house.	
Craven.....	Dr. N. H. Street.	Polk	Dr. Earle Grady.
Cumberland.....	Dr. Jno. D. McRae.	Randolph	Dr. S. A. Henley.
Currituck	Dr. H. M. Shaw.	Richmond.....	Dr. F. J. Garrett.
Dare	Dr. W. B. Fearing.	Robeson	Dr. H. T. Pope.
Davidson	Dr. Joel Hill.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan.....	Dr. W. L. Crump.
Duplin	Dr. O. F. Smith.	Rutherford.....	Dr. T. B. Twitty.
Durham	Dr. N. M. Johnson.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. W. J. Thigpen.	Scotland	Dr. A. W. Hamer.
Forsyth.....	Dr. John Bynum.	Stanly.....	Dr. V. A. Whitley.
Franklin	Dr. E. S. Foster.	Stokes	Dr. W. V. McCanless.
Gaston.....	Dr. J. H. Jenkins.	Surry	Dr. John R. Woltz.
Gates.....	Dr. W. O. P. Lee.	Swain.....	Dr. J. A. Cooper.
Graham	Dr. R. J. Orr.	Transylvania	Dr. C. W. Hunt.
Granville	Dr. S. D. Booth.	Tyrrell.....	
Greene.....	Dr. Joseph E. Grimsley.	Union	Dr. John M. Blair.
Guilford.....	Dr. Edmund Harrison.	Vance.....	Dr. Goode Cleatham.
Halifax	Dr. I. E. Green.	Wake.....	Dr. J. J. L. McCullers.
Harnett.....	Dr. O. L. Denning.	Warren.....	Dr. E. M. Gayle.
Haywood	Dr. S. B. Medford.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga.....	Dr. T. C. Blackburn.
Hertford	Dr. J. H. Mitchell.	Wayne.....	Dr. Williams Spicer.
Hyde	Dr. E. H. Jones.	Wilkes.....	Dr. W. P. Horton.
Iredell	Dr. R. A. Campbell.	Wilson.....	Dr. W. S. Anderson.
Jackson.....	Dr. R. L. Davis.	Yadkin	Dr. M. A. Royall.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. L. Ray.

BULLETIN

OF THE

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J. L. NICHOLSON, M. D., Richlands.

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No. 8.

Causes, and Suggestions for the Prevention, of Tuberculosis.

PRESIDENTIAL ADDRESS.*

BY HENRY D. HOLTON, A. M., M. D.

It is estimated that one-seventh of the world's population die from tuberculosis every year. That in this country, including its insular possessions, there are upward of half a million persons suffering from tuberculosis; of these cases 400,000 will ultimately terminate in death. Were we engaged in war with any country, necessitating our putting into the field half a million of soldiers, of which four-fifths of them should perish in a period of two or three years from contagious diseases, the press and the whole people would deplore this loss of life and demand of those in authority that efficient means be taken to prevent so great a calamity.

The number of persons dying in Germany from consumption during the time of the Franco-Prussian War was twice as large as the mortality from the casualties of the war.

We are here to take counsel and formulate such measures as seem best calculated to stay the devastating progress of this "white plague." It is well settled that the disease is propagated by the bacillus tuberculosis, a vegetable germ. In order that this germ may live and flourish, it must find suitable soil upon which to rest and where it can be free from antagonistic elements which would encompass its destruction. The great source of these infective germs undoubtedly is from the expectoration of those persons who are suffering from the disease. Of the probable other sources, meat and dairy products are to be considered. Smith, Koch and some others hold to the opinion that it is not proven that the bovine bacillus can infect the human; it is to be noticed that they do not say that it is impossible. The fact

* Read at the Meeting of the American Congress on Tuberculosis, New York, June 2, 1902.

is well established that man has been accidentally inoculated with bovine tuberculosis bacillus. However, it is properly claimed that this is different from natural infection; it does, however, conclusively demonstrate to my mind that the bovine bacillus is pathogenic to the human. Eminent bacteriologists claim that morphologically they are not the same. Lartigan and Ravenel have both demonstrated that there is a marked difference in the appearance of the tubercle bacilli found in different tubercular affections of the human body. Chaveau, using material from cases of acute miliary tuberculosis in men, prepared in the form of an emulsion and fed to calves, demonstrated that human tuberculosis bacilli were possessed of sufficient virulence to produce the disease in them, and when injected subcutaneously it caused local tubercular disturbance; hence he claims that they are practically identical.

Prof. Behring, in his forthcoming book on tuberculosis in cattle, details the result of six years' investigations at Marburg, where he was assisted by Drs. Ruppel and Roemer. He affirms that tuberculosis in man and cattle is propagated by identical bacilli, and that the seeming differences between human and bovine bacilli result from the capacity of the bacilli to accommodate themselves to the organism in which they live. He reaches the conclusion that, chemically and physiologically, tubercle in man and cattle are of the same species. He has successfully infected cattle with virus from human beings, producing fatal tuberculosis. He has discovered a method to render cattle immune against tuberculosis by vaccinating cattle when they are young. This he declares to be his

greatest discovery. The method is in use on farms at Marburg.

This leads to the question, What effect environment may have upon this vegetable germ? It is well known that other vegetable seeds germinating under different conditions of air, soil, humidity, heat, in fact very dissimilar environments, produce almost a different variety, or at least a very much changed product. Giving due consideration to this fact, is it not proper conclusion that the observed differences in the bovine and human bacillus may be owing to this change in environment. The difference in virulence has been claimed as another evidence that bovine and human bacilli are distinct varieties and we know that other pathogenic bacilli vary in virulence under practically the same conditions.

Many have claimed that unless the udder of the cow was tuberculous, there could not possibly be any danger from the use of the milk and its products. The report made in 1895 on "The Infectiousness of Milk from Tuberculous Cows with no Lesion of the Udder," by Prof. Harold C. Ernst, for the trustees of the Massachusetts Society for Promoting Agriculture, seems to have been overlooked. After giving a detailed report of each examination, he sums up the result as follows:

"There were 121 examinations of milk and cream made, the specimens coming from thirty-six different animals. The bacilli of tuberculosis were found in one or more cover-glasses upon nineteen different occasions.

"These nineteen positive results were obtained from twelve different animals, and the bacilli were found in about equal proportion in the milk and the cream;

they were seen more than once in milk from the same cow, at different examinations, six times.

"The bacilli were actually seen, therefore, in specimens from one-third (33 per cent.) of the animals examined.

"That these animals were actually affected with tuberculosis, and that the udder was free from disease, was proven in all possible cases by careful post-mortem examinations. These were conducted upon twenty out of thirty-six animals and the notes of that examination are given."

A series of experiments were made by Dr. Ernst to ascertain if it were possible to communicate tubercular disease by the use of milk from cows affected with tuberculosis, yet having healthy udders. These experiments were conducted under as careful precautions as could be devised, first injecting their milk subcutaneously in other animals; second, by feeding healthy calves positively free from tuberculosis with the milk of cows having the disease, but who had healthy udders. The result of these experiments showed that the disease was communicated both by inoculation and by using the milk as food. In addition to these experiments, reports of clinical cases where the disease had been traced to the use of milk as food were obtained by a circular sent to both physicians and veterinarians, with the result that out of about one thousand replies nearly six per cent. reported having seen cases suspected to have resulted from this cause. These reports were made in 1890, when the fact that the disease was the result of a specific germ was only partially appreciated. It may be said that these clinical reports are of small value, as they are only opinions, not actually ver-

ified in a thoroughly scientific way by those reporting them.

As a result of these carefully made tests, Prof. Ernst draws the following conclusions:

"1. While the transmission of tuberculosis by milk is probably not the most important means by which the disease is propagated, it is something to be guarded against most carefully.

"2. The possibility of milk from tuberculous udders containing the infectious element is undeniable.

"3. With the evidence here presented it is equally undeniable that milk from diseased cows with no appreciable lesion of the udder may, and not infrequently does, contain the bacillus of the disease.

"4. Therefore, all such milk should be condemned for food."

It has been asserted that inoculation with bovine bacillus will produce the disease in other animal species. This is corroborated by the reported cases of accidental inoculation of humans by bovine bacillus as reported by Ravenel and others. Again we find the disease communicated by the use of milk containing the bacillus used as food for other species of animals: evidently the experimenter did not feel at liberty to try the experiment of feeding humans with milk containing the germs of tuberculosis, but numerous cases have been reported where persons have used for food milk from cows found to have been affected with these bacilli and have developed tuberculosis, from which they have died.

Dr. Jacobi, of this city, in a recent article calls attention to the following reported cases:

"A boy of five months was perfectly healthy while at the breast of his moth-

er. Then he was fed on raw cow's milk and suffered from emaciation, diarrhoea and anorexia. He died after two months. There was tuberculosis of the intestines and of the mesenteric glands; all other organs were normal. The cow that furnished the milk died suddenly two months afterwards. She had pulmonary and pleural tuberculosis; the udders were intact.

"Four children suffering with intestinal tuberculosis had no hereditary predisposition, but had been fed with the raw milk of tuberculous cows.

"In a boarding school thirteen girls contracted tuberculosis; six of them died, several perished of primary intestinal tuberculosis. The milk furnished came from a tuberculous cow with badly infected udders."

He received for examination the thoracic and abdominal viscera of a cow that had enjoyed the reputation of being the finest cow on the farm until she emaciated rapidly and died. Her milk was selected by the farmer, on account of her splendid condition, for his own infant. This child commenced to pine away and died of miliary cerebral tuberculosis at the age of two and one-half years.

In connection with the experiments of Dr. Ernst, it is interesting to note that of nineteen calves dropped by these tuberculous cows with healthy udders, all being killed within six days after birth, not one showed any evidence of tuberculosis, although a most careful examination was made with special reference to this point. This would seem to be strong evidence that the disease was not transmitted from mother to offspring. The consensus of opinion seems to be that the bacillus of tuberculosis is

not transmitted from parent to child as syphilis may be. There are, however, certain inherited conditions which predispose the child to tuberculosis—viz.: nervous temperament, resulting in a relaxed mucous membrane, easily abraded, which affords a particularly good nidus for the bacillus to lodge and develop; want of proper nervous supply to the assimilating organs whereby the blood is impoverished, resulting in sluggish gland secretion, deficient in power to destroy these vegetable germs, when they find their way into the system; narrow chests, which allow the mucosa of the lungs to be more quiet and prevent proper aeration of the blood. Quite as powerful agents are the various acquired conditions which predispose the person to give place to and afford the desired resting-place for the seeds of this dread disease.

Among some of the most active predisposing causes are intemperance, insufficient clothing, living in filthy, damp localities, overcrowding, improper or insufficient food; in fact, all the various conditions which tend to reduce the vitality of the individual, thus rendering them more susceptible when the tubercular bacilli come their way. Considering that so many persons are born with or have acquired nervous systems and mucous surfaces ready to aid in developing the tubercular bacilli, the presence everywhere of sputum containing myriads of these germs, their presence in various food products, it is well for us to inquire why any have escaped this scourge. First, many of these germs are undoubtedly destroyed by sunlight, while those that survive and find their way by inhalation into the air passages or with food into the alimentary canal

are met by secretions of various glands which act as germicides, destroying a large portion of them. In many individuals the remainder do not find a proper lodgment, hence are thrown off without having infected their host. With this brief *resume* of the principal sources by which tuberculosis is communicated to human beings, we come face to face with the problem which we have gathered to consider and which I trust we shall contribute in some degree to solve, to-wit: What means shall be adopted to prevent this continual infection of the human family?

First, I believe as all-important is the education of the masses in better methods of living, and this must be insisted upon, as the foundation upon which to rear the fabric of prevention. They must be made to fully appreciate the necessity of clean, well-ventilated homes, with perfect hygienic surroundings; to have plain, properly cooked food, to avoid all excesses, particularly alcoholic; in fact, to avoid everything that tends to reduce vitality. Especially care must be used by those who contract the disease in disposing of their expectorate matter. We must recognize the fact that in the large towns and cities the dwellers in those portions known as tenement-house districts cannot regulate their surroundings; therefore, influences must be brought to bear upon owners of such property to build and keep them in such sanitary condition as local health authorities may require. If they do not do this, then legal enactments should be secured giving health boards the power to compel compliance with such sanitary requirements. We must insist that all tenement houses shall be so constructed as to give each room plenty of sunshine

and fresh air and make sure that they are not overcrowded.

It is our duty to impress the laity with the truth that in damp and low, undrained localities, as well as in crowded cities, the germs of this disease particularly abound.

Second. We believe that having taught the communicability of this "plague" by means of germs found in the secretions of those suffering with it, compulsory notification should be insisted upon. The head of the family, the patient or the medical attendant should be held to as strict accountability to report a case of pulmonary tuberculosis as of any other communicable disease, not for the purpose of quarantine, but that the patient, family and all who may have daily associations with such persons may be able to take such precautions as may be advisable, and that patient and family may receive instruction which will prevent the infected person becoming a source from which others may become affected. The objection made to notification that it will tend to shut the persons out from all communication with their fellows and prevent those who are able to aid by remunerative labor from contributing to the support of themselves and others who may be dependent upon them, is not to be considered. With proper care the patients may remain in their own family without danger of infecting them. You will note that we say "proper care," one object of the notification being to instruct all concerned as to what "proper care" means. If the tuberculous subject is to be cured, it should be understood by every one that an early and accurate diagnosis should be made and the patient given a clear and truthful state-

ment of the condition found, and the further information that under certain conditions, hereafter to be mentioned, a cure is probable. To this end the earnest and faithful co-operation of the patient must be had. Hence he must thoroughly understand what his condition is and what effort he is expected to make in order that he may be cured. Requiring that cases of tuberculosis be reported is not of recent origin. More than one hundred and twenty-five years ago, in the Kingdom of Naples, not only was notification required with severe penalties for neglect so to do, but other requirements to prevent its spread were enforced by equally heavy penalties, as is shown by the following edict of the sovereign of the Kingdom of Naples, issued on the 19th of July, 1772:

"1st. That the physician shall report the consumptive patients when ulceration of the lungs has been established, under penalty, for the first offense, 300 ducats, and, upon repetition, of banishment for ten years.

"2d. That an inventory shall be made by the authorities of the clothing in the patient's room, to be identified after his death, and, if any opposition shall be made, the person doing so, if he belongs to the lower class, shall have three years in the galleys or in prison; if to the nobility, three years in the castle and a penalty of three hundred ducats.

"3d. That the household goods which are not susceptible shall be immediately cleansed, and those that are susceptible shall at once be burned.

"4th. That the authorities themselves shall tear out and replaster the house, alter it from cellar to garret, carry away and burn doors and wooden windows and put in new ones.

"5th. That the poor sick shall at once be removed to a hospital.

"6th. That newly-built houses cannot be inhabited before one year from their completion and six months after plastering has been finished and repairing has been done.

"7th. The superintendent of hospitals must keep in separate places clothing and bedding for the use of consumptives.

"Other severe penalties are threatened to those who buy or sell objects which have been used by consumptives and to servants, members of the family and to any transgressor whomsoever."

What was the apparent result of these stringent regulations at the time they were promulgated? The mortality from tuberculosis in that kingdom was, as nearly as can be determined, ten per one thousand population: in the same territory to-day it is 1.16 per one thousand population, and all Italy has the lowest rate of mortality from this disease of any European country. Keep in mind that when this edict was published it was not known in what way the disease was communicated, but simply that it was contagious. A hundred years later Koeh announced the discovery of the tubercular bacillus, giving us an opportunity to prevent its spread by simpler and much less onerous regulations. Shall we, with this example of prevention before us, longer hesitate to make and execute the regulations that our increased knowledge indicates will practically stamp out this pestilence?

We do not apprehend that there would be as much trouble in collecting the reports of these cases as has been feared. A most successful example of locating by reports cases of tuberculosis is found in the April report of Major Gorgas, chief

sanitary officer at Havana, who, having succeeded in eradicating yellow fever from that city, has now entered upon a campaign to exterminate tuberculosis. He says: "The great object of the department has been to get the cases of tuberculosis located, and through the various measures used, we have now about 2,500 cases on our lists. These names are carded, with residence and other data, and popular literature sent to them explaining their disease, its communicability and the best manner of care. I believe that, if the system can be continued for four or five years, tuberculosis can be eradicated as yellow fever has been. We had 900 deaths last year from tuberculosis. Placing the average length of a case of tuberculosis at three years, which is a longer period than is usually given to this disease, we would have 2,700 cases of tuberculosis on hand in this city. As we have at present 2,500 located and carded, it can be seen how thorough and successful our system of reporting has been."

The third preventive which presents itself is of marked importance, possessing dual properties of prevention and cure. Sanatoria for consumptives open to a large class an avenue of escape from certain death; at the same time it prevents the spread to a considerable extent of this dread disease. The first institution of the kind was established in Germany in 1859. At the present time there are over forty. The first in this country was established by Dr. E. L. Trudeau at Saranac Lake, in the Adirondack Mountains in 1884. Other private sanatoria have been inaugurated from time to time until there are between forty and fifty. Massachusetts was the first to open a public institu-

tion to devote to the care of its tubercular citizens. Connecticut has followed: New York City opened one last February; several more States are reported to have provided for similar institutions. Abroad they are moving rapidly in the matter. Sir Edward Cassell has placed at the disposal of the King of England a million dollars for the establishment of a sanatorium for tubercular patients; in order to insure this institution being as perfect as possible, His Majesty has offered three prizes of \$2,500, \$1,000 and \$500, open to men of all nationalities, for the best plans and essays for the construction of a model sanatorium. Our own government, in 1899 established one for the Army, Navy and Marine Hospital Service at Fort Bayard, New Mexico. By gathering as many as possible into sanatoria for treatment we prevent infection of other members of their families. Instruct the patient in the best methods to be used to prevent communicating it to others, and having them constantly under the watchful care of an experienced medical man, they are gradually brought from under the cloud of disease into the sunshine of health, when they can return to their former occupations and associates, where they will act as missionaries to instruct others in the way of living to prevent their acquiring the disease. It has been found that the mortality among patients living in the neighborhood of a sanatorium was very much reduced by reason of information imparted by inmates of the sanatoria as to the methods of living and caring for themselves.

The reported result of treatment in the various sanatoria is certainly most wonderful and demands the attention

of the profession and public. These reports show that from twenty-five to ninety per cent. of cases are cured. The variation in results depends in a large measure upon the stage of the disease when admitted to the sanatoria. Naturally the earlier the patient is submitted to the treatment after the bacillus has begun its work of destruction, the greater the prospect of permanent cure. Hence the public, as well as the profession, should be impressed with the great importance of an early diagnosis of tuberculosis. In the incipient stage, before any cough or any bacilli are to be found in the secretions expectorated, when the patient seeks a prescription, because, as he says, "he is run down," some degree of anemia is present, a slight rise in temperature is noticed, possibly slightly diminished resonance at the apex of lung. X-Ray examinations may help to settle the diagnosis; there remains one more diagnostic test that should be used—"tuberculin." This has never been in general use by the profession after its failure as a therapeutic agent. Its principal use has been by veterinarians for the purpose of diagnosing tuberculosis in bovines: for this purpose it has proved accurate and reliable. A few practitioners have used it for the same purpose in the human, with the result that it has been found safe and accurate. The superintendent of the London County Asylum for the Insane, in England, desirous of determining if certain of his patients had tuberculosis, reports that of fifty-five cases tested by him with tuberculin, characteristic reactions occurred in forty-five, and thirty-four of them died. Of this number, autopsies were made in twenty-nine, and active tubercular in-

fection was found in every case. Ten of the fifty-five did not react; of these five are still alive; five have died: on a post-mortem examination of these, no trace of tubercle was found. The consensus of opinion of all who have used it to any considerable extent seems to be that it is accurate as a means of diagnosis, but is entirely harmless, both in the tuberculous and non-tuberculous. The time has passed when the expectant plan of waiting for developments can be pursued; it has always been a plan that led through much suffering to death. With the knowledge heretofore possessed it was all that could be done; now, however, no practitioner can enter the plea that he is doing all that can be done while he is waiting for developments without being charged with being accessory to the death of the patient. With the early diagnosis made, as already pointed out, the person invalidated by the death-dealing bacilli is at once placed in position and surrounded by the means to destroy and expel the enemy, with probabilities very largely in favor of ultimate and complete victory. The various private sanatoria not only offer to the wealthy the way of escape from long invalidism, suffering and death, but lead them through pleasant avenues back to health, the pursuit of happiness and useful occupations, surrounded by loving friends who have been anxiously waiting the auspicious result. But what of the bread-winner or the youth struggling to win sustenance for a family of dependents or blaze his way from poverty and obscurity to competency and a place among the worthy citizens of the communities?

Shall he remain, as now, doomed to certain but gradual, wasting decay and

death, with the added anguish that he is likely to communicate the same plague to the loved ones for whom he had cherished most lofty ambitions, but who must prematurely fight the battles of life, while with anguish they watch his growing feebleness, as gradually but inevitably he goes down to death as the result of his unassisted warfare with the victorious bacilli of tuberculosis? To this class the State owes a duty that should not longer be delayed. It should provide sanatoria in which at the earliest possible moment the victim of this terrible scourge should be placed and thus given all aid possible to bring him back to his just heritage and all the duties of citizenship. For those who through ignorance or neglect have advanced beyond the curative stage there should be provided homes where they may be cared for at the same time they are prevented from infecting others.

It will be the duty, and undoubtedly the pleasure, of this congress to consider these various questions. We believe that recommendations should be made to State and municipal boards of health, urging them to increase their efforts with a view to educate all classes of our citizens in the knowledge of the infectiousness of this disease and the best means of preventing its spread, including notification of infected persons and the disposal of their secretions; care to be taken in the use of dairy products and beef as food by the public in general.

Further action should be taken setting forth the duty of State and municipal governments to provide sanatoria where the poor can seek cure in the earliest stage of the infection, and hospitals for the care of advanced cases where they can be made comfortable and pre-

vented from conveying the germs to others.

"Let our increasing, earnest prayer
Be, too, for light—for strength to bear
Our portion of the weight of care
That crushes into dumb despair
One-half the human race."

The committee appointed to consider the recommendations contained in the president's address would respectfully report as follows:

We favor the adoption of the recommendation: (1) That the regulation of tenement-houses, as regards ventilation, sunshine and the drainage of the soil upon which they are located, is of much importance in the prevention of tuberculosis, and should be controlled, and by legal enactment if necessary.

(2) That compulsory notification of pulmonary tuberculosis, for educational purposes, is highly desirable, and should be insisted upon.

(3) That tuberculous patients, with proper care, may remain in their family without danger of infecting them, although such patients would undoubtedly have a better chance for cure in a properly conducted sanatorium.

(4) That it is in the highest degree the duty of the State to provide sanatoria, both for the cure and care of her citizens afflicted with tuberculosis.

Your committee takes it for granted that this admirable address will be printed in full in the "Transactions."

C. O. PROBST,
W. H. BRACKEN,
O. B. DOUGLAS.

By courtesy of the Editor of the Transactions of American Congress of Tuberculosis, 1902.—*Sanitarian*.

Review of Diseases for October, 1902.

EIGHTY-SIX COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

MEASLES.—Chatham; Craven, 6; Rowan, 6.

WHOOPING-COUGH.—Beaufort, 4; Bladen, 3; Cabarrus, 12; Camden, 10; Chowan, several; Cleveland, a few; Cumberland, a few; Halifax, 1; Lenoir, several; Pamlico, several; Randolph; Robeson; Rowan, 3; Union, 15; Wake, 2; Washington, 5; Yancey, several—17 counties.

SCARLET FEVER.—Burke, 5; Cabarrus, 8; Catawba, 2; Craven, 2; Davidson, 3; Franklin, 1; Guilford, 5; Halifax, 6; Henderson, 4; Iredell, 1; Lenoir, several; Madison, 100; Mecklenburg; New Hanover, 4; Person, a few; Randolph, a few; Rowan, 3; Rutherford, 2; Stanly; Wake, 1; Watauga, 10; Wilkes, 5—22 counties.

DIPHTHERIA.—Alamance, 1; Anson, 1; Brunswick, many; Cabarrus, 2; Caswell, 2; Cleveland, a few; Craven, 10; Duplin, several; Forsyth, 2; Gaston, several; Graham, 1; Granville, 3; Haywood, 3; Jones, 13; Lenoir, 5 or 6; Martin, 2;

Mecklenburg; New Hanover, 2; Northampton, 8; Onslow, 3; Polk, 1; Rutherford, 2; Stanly; Surry, 2; Yadkin, 1—25 counties.

TYPHOID FEVER.—Alamance, 22; Alexander, in all parts; Anson, a few; Ashe, 8; Beaufort, 3; Bertie, 1; Bladen, 3; Brunswick, 12; Burke, 6; Cabarrus, in all parts; Caldwell, 6; Camden, 1; Caswell, 2; Catawba, 3; Chatham; Chowan, 3; Cleveland, a few; Columbus, 3; Craven, 5; Cumberland, a few; Currituck, 6; Davidson, several; Durham; Edgecombe, a few; Forsyth, in all parts; Franklin, many; Gaston, a few; Gates, 2; Graham, 1; Greene, in all parts; Guilford, many; Halifax, several; Haywood, 6; Henderson, 1; Hertford, 3; Iredell, 6; Jackson, 2; Johnston; Jones, 8; Lenoir, many; McDowell, several; Madison, 1; Martin, 10; Mecklenburg; Nash, 5; New Hanover, 6; Northampton, many; Onslow, 8; Orange, 3; Pamlico, 2; Pender, several; Perquimans, 4; Person; Polk, 2; Randolph, in all parts; Robeson, several; Rowan, 10; Rutherford, 4; Sampson, many; Scotland, several; Stanly; Stokes, in most parts; Union, 20; Wake, 13; Washington, 3; Watauga, a few; Wayne, a few; Wilkes, 2; Yadkin, 1; Yancey—70 counties.

MALARIAL FEVER.—Alamance, general; Beaufort; Bertie, general; Bladen, general; Brunswick; Camden; Chatham, a few; Chowan; Currituck, in all parts; Durham; Franklin; Gates; Granville; Greene, general; Halifax; Hertford; Hyde; Jones; Lenoir, general; Martin, general; Northampton; Onslow, general; Orange; Pamlico, general; Pasquotank; Pender, general; Perquimans; Randolph, Sampson; Wake—36 counties.

MALARIAL FEVER, PERNICIOUS.—

Brunswick, 2; Hertford, 2; Orange, 3; Randolph, a few.

MALARIAL FEVER, HEMORRHAGIC.— Beaufort, 1; Chowan, 3; Hertford, 1; Hyde, 1; Jones, 1; Martin, 3; Northampton, 9; Onslow, 2; Pamlico, 1; Pasquotank, 1; Perquimans, 1; Wake, 2—12 counties.

BOWELL DISEASES.—Lenoir.

INFLUENZA.—Randolph.

MUMPS.—Hyde, in all parts.

PNEUMONIA.—Caswell, Orange, Person, Polk.

TONSILLITIS.—Moore.

SMALL-POX.—Alamance, 1; Burke, 3; Cabarrus, 3; Carteret, 4; Catawba, 1; Cleveland, 5; Craven, 51; Forsyth, 13; Gaston, 15 to 20; Graham, several; Guilford, 7; Iredell, 1; Jones, 4; Mecklenburg, 48; Northampton, 9; Rutherford, 2; Swain, 25; Union, 8; Yadkin, 1—19 counties.

CHOLERA, IN HOGS.—Hertford, Martin, Perquimans.

HYDROPHOBIA, IN DOGS.—Lenoir.

No diseases reported from Clay, Dare, Davie, Lincoln, Macon, Pitt, Warren and Wilson.

No reports received from Alleghany, Buncombe, Cherokee, Harnett, Mitchell, Montgomery, Richmond, Rockingham, Transylvania and Vance.

Summary of Mortuary Reports for October, 1902.

(TWENTY-SIX TOWNS).

White. Col'd. Total.

Aggregate population.....	83,300	58,850	142,150
Aggregate deaths..	108	155	263
Representing temporary annual death rate per 1,000	15.5	31.6	22.2

Causes of Death.

Typhoid fever	13	5	18
Scarlet fever	0	1	1
Malarial fever.....	3	13	16
Diphtheria	5	2	7
Whooping-cough...	0	1	1
Measles.....	1	0	1
Pneumonia.....	3	6	9
Consumption	6	24	30
Brain diseases	6	3	9
Heart diseases.....	4	7	11
Neurotic diseases...	2	4	6
Diarrhoeal diseases	13	18	31
All other diseases..	47	61	108
Accident	3	10	13
Violence	2	0	2
	108	155	263
Deaths under five years.....	36	57	93
Still-born.....	9	17	26

Mortuary Report for October, 1902.

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition one white, non-resident, died of consumption.

County Superintendents of Health.

Alamance	Dr. H. R. Moore.
Alexander	Dr. C. J. Carson.
Alleghany	Dr. Robt. Thompson.
Anson	Dr. J. H. Bennett.
Ashe.....	Dr. J. W. Colvard.
Beaufort	Dr. Jno. G. Blount.
Bertie	Dr. H. V. Dunstan.
Bladen.....	Dr. L. B. Evans.
Brunswick	Dr. J. A. McNeill.
Buncombe	Dr. E. B. Glenn.
Burke.....	Dr. J. L. Laxton.
Cabarrus	Dr. R. S. Young.
Caldwell	Dr. A. A. Kent.
Camden.....	Dr. J. L. Lister.
Carteret	Dr. F. M. Clark.
Caswell	Dr. S. A. Malloy.
Catawba	Dr. Geo. H. West.
Chatham.....	Dr. H. T. Chapin
Cherokee.....	Dr. Oscar Patton.
Chowan.....	Dr. T. J. Hoskins.
Clay	Dr. J. O. Nichols.
Cleveland	Dr. B. H. Palmer.
Columbus.....	Dr. I. Jackson.
Craven.....	Dr. N. H. Street.
Cumberland.....	Dr. Jno. D. McRae.
Currituck	Dr. H. M. Shaw.
Dare	Dr. W. B. Fearing.
Davidson	Dr. Joel Hill.
Davie	Dr. James McGuire.
Duplin	Dr. O. F. Smith.
Durham	Dr. N. M. Johnson.
Edgecombe	Dr. W. J. Thigpen.
Forsyth.....	Dr. John Bynum.
Franklin	Dr. E. S. Foster.
Gaston.....	Dr. J. H. Jenkins.
Gates.....	Dr. W. O. P. Lee.
Graham	Dr. R. J. Orr.
Granville	Dr. S. D. Booth.
Greene.....	Dr. Joseph E. Grimsley.
Guilford.....	Dr. Edmund Harrison.
Halifax	Dr. I. E. Green.
Harnett.....	Dr. O. L. Denning.
Haywood	Dr. S. B. Medford.
Henderson	Dr. J. G. Waldrop.
Hertford	Dr. J. H. Mitchell.
Hyde.....	Dr. E. H. Jones.
Iredell	Dr. R. A. Campbell.
Jackson.....	Dr. R. L. Davis.
Johnston	Dr. L. D. Wharton.
Jones.....	Dr. S. E. Koonce.
Lenoir	Dr. C. L. Pridgen.
Lincoln	Dr. T. F. Costner.
McDowell	Dr. B. A. Cheek.
Macon	Dr. F. L. Siler.
Madison	Dr. Jas. K. Hardwicke.
Martin.....	Dr. W. H. Harrell.
Mecklenburg.....	Dr. C. S. McLaughlin.
Mitchell.....	Dr. V. R. Butt.
Montgomery	Dr. M. P. Blair.
Moore.....	Dr. Gilbert McLeod.
Nash	Dr. J. P. Battle.
New Hanover	Dr. W. D. McMillan.
Northampton.....	Dr. H. W. Lewis.
Onslow.....	Dr. E. L. Cox.
Orange.....	Dr. D. C. Parris.
Pamlico.....	Dr. H. P. Underhill.
Pasquotank	Dr. J. E. Wood.
Pender.....	Dr. R. J. Williams.
Perquimans	Dr. C. C. Winslow.
Person	Dr. J. A. Wise.
Pitt.....	Dr. C. O'H. Laughinghouse.
Polk	Dr. Earle Grady.
Randolph	Dr. S. A. Henley.
Richmond.....	Dr. F. J. Garrett.
Robeson	Dr. H. T. Pope.
Rockingham	Dr. Sam Ellington.
Rowan.....	Dr. W. L. Crump.
Rutherford.....	Dr. T. B. Twitty.
Sampson	Dr. R. E. Lee.
Scotland	Dr. A. W. Ilamer.
Stanly.....	Dr. V. A. Whitley.
Stokes	Dr. W. V. McCauley.
Surry	Dr. John R. Wolz.
Swain.....	Dr. J. A. Cooper.
Transylvania	Dr. C. W. Hunt.
Tyrrell.....	
Union	Dr. John M. Blair.
Vance.....	Dr. Goode Cheatham.
Wake.....	Dr. J. J. L. McCullers.
Warren.....	Dr. E. M. Gayle.
Washington	Dr. W. H. Ward.
Watauga.....	Dr. T. C. Blackburn.
Wayne.....	Dr. Williams Spicer.
Wilkes.....	Dr. W. P. Horton.
Wilson.....	Dr. W. S. Anderson.
Yadkin	Dr. M. A. Royall.
Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough -----	Typhoid Fever -----
Measles -----	Typhus Fever -----
Diphtheria -----	Yellow Fever-----
Scarlet Fever -----	Cholera -----
Pernicious Malarial Fever-----	Smallpox-----
Hemorrhagic Malarial Fever-----	Cerebro-spinal Meningitis-----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

M. D.

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N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., *Asheville*.
HENRY W. LEWIS, M. D., *Jackson*.
J. L. NICHOLSON, M. D., *Richlands*.

W. P. IVEY, M. D., *Lenoir*.
FRANCIS DUFFY, M. D., *New Bern*.
W. H. WHITEHEAD, M. D., *Rocky Mt*.
J. L. LUDLOW, C. E., *Winston*.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XVII.

DECEMBER, 1902.

No. 9.

The American Public Health Association.

The Association with the title given above is the largest and most influential organization for the promotion of the public health in the Western Hemisphere. Its membership is drawn from the United States, Canada and Mexico, and while it consists largely of professional sanitarians, health officers and members of boards of health, large numbers of public-spirited citizens of nearly every calling—ministers, physicians, lawyers, engineers, merchants and others—are found upon its roll. In the thirty years of its existence it has accomplished much for the advancement of the cause of hygiene throughout North America.

The recent annual meeting at New Orleans, December 8-11, was well attended, delegates being present from most of the provinces of the Dominion, including far-away British Columbia, from a large proportion of the States of Mexico and from a majority of the

States of the Union, and was quite a successful one. The scope of the work done is shown in the following list of papers, nearly all of which were read:

"An Official Examination of the Waters of the United States," by Marshall Leighton, Hydrographer, Washington, D. C.

"Disposal of Refuse Materials"—Report of Chairman, Rudolph Herring, C. E., New York.

"Refuse Disposal in Montreal," by Dr. E. P. Lachapelle, Montreal, Canada.

"Street Hygiene in Vera Cruz and the City of Mexico," by Manuel Iglesias, Vera Cruz, Mexico.

"The Collection and Disposal of Garbage in Providence, R. I." by Dr. C. V. Chapin, Providence, R. I.

"The Disposal of Refuse in the City of Buffalo, New York," by Olin H. Landreth, C. E., Buffalo, N. Y.

"The Disposal of Refuse Materials in Cincinnati, Ohio," by Dr. Byron Stanton, Cincinnati, Ohio.

"The Disposal of the Refuse of New York City," by Dr. George A. Soper, New York.

"Animal Diseases and Animal Food"—Report of the Chairman, D. E. Salmon, D. V. M., Washington, D. C.

"Sanitary Measures Proposed to the Mexican Railway Companies," by Dr. Eduardo Liceaga, Mexico City.

"Vital Statistics a Plea for Actuarial Administration and Control of the Great Resources of Preventive Medicine," by Dr. John S. Fulton, Baltimore, Md.

"Co-operation Essential to Progress in Vital Statistics," by Dr. Cressy L. Wilbur, Lansing, Mich.

"Cause, Prevention, Period of Incubation and Duration of Infectious Diseases," by Dr. Walter A. Suiter, Herkimer, N. Y.

"Period in Which Every Contagious Malady can be transmitted and Period in Which Every Sick Person is Dangerous to Healthy Persons Near Him," by Dr. Louis E. Ruiz, Mexico.

"A Note Concerning the Transmission of Pathogenic Fungi by Flies and Mosquitoes," by Dr. Jose P. Gayon, Mexico.

"Principal Causes of Infectious Diseases and Principal Means to Act Against Them," by Dr. Jesus E. Monjarras, Mexico.

Public Health Legislation—Report of Chairman, U. O. B. Wingate, M. D., Milwaukee, Wis.

"Cause and Prevention of Infant Mortality," by Dr. Francisco Sanchez Munoz, Mexico.

"Wet Nurses: Their Hygienic Importance," by Dr. Ramon N. Prado, Mexico.

Disinfectants and Disinfection—Report of Chairman, Prof. Francis C. Robinson, Brunswick, Me.

"Examination of Rooms Occupied by Diphtheria and Tuberculosis Patients for the Presence of B. Diphtheriae and B. Tuberculosis Respectively," by Dr. Hibert W. Hill, Boston, Mass.

"Experiments in Disinfection with Formaldehyde Gas," by Dr. M. P. Ravenel, Philadelphia, Pa.

National Leper Homes—Report of Chairman, Dr. H. M. Bracken, St. Paul, Minn.

Dangers to the Public Health from Illuminating Gas—Report of Chairman, Dr. S. H. Durgin, Boston, Mass.

Transportation of Diseased Tissue by Mail—Report of Chairman, Dr. F. F. Westbrook, Minneapolis, Minn.

"Annual Report on Yellow Fever in Mexico," by Dr. Eduardo Liceaga, Mexico.

"Information on the Orizaba (Mexico) Yellow Fever Epidemics," by Dr. Narciso del Rio, Mexico.

"Reasons for Believing That the Only Way in Nature for Yellow Fever to be Contracted by Man is from the Mosquito," by Dr. John W. Ross, United States Navy.

"Concerning the Method of Transmission of Yellow Fever from Man to Man," by Dr. Wm. C. Gorgas, United States Army.

"The Disinfection of Railroad Cars as a Precautionary Measure Against the Propagation of Yellow Fever by Mosquitoes," by Dr. Manuel S. Iglesias, Mexico.

"Work of the American and Mexican Committees Appointed to Study Yellow Fever in Vera Cruz," by Dr. Antonio Matienzo, Mexico.

"Investigation of Yellow Fever in

Vera Cruz," by Prof. Geo. E. Beyer, New Orleans.

"Tubercolosis and Agricultural Colonies," by Felix Formento, M. D., New Orleans.

The Relative Immunizing Value of Human and Bovine Vaccine Virus—Report of Chairman, Dr. P. H. Bryce, Toronto, Ontario.

"Only Asepsis Necessary in Vaccine," by Dr. Jesus Gonzalez Urena, Mexico.

"Human Vaccine as a Preventive for Small-pox," by Dr. E. Liceaga.

"Experiments of Re-vaccination in Mexico," by Jose Ramirez, Mexico.

To Investigate the Canteen System of the U. S. Army—Committee Report, by Dr. Chas. A. Lindsley, New Haven, Conn.

Sanitary Aid Societies—Committee Report, Mr. Henry Lomb, Rochester, N. Y.

"Dirt Diseases and the Public Health," by Dr. C. V. Chapin, Providence, R. I.

"Relations Between Hygiene and Political Economy," by Dr. Jesus Chico, Mexico.

"Oculists and Opticians," by Dr. Augustin Chacon, Mexico.

"The Water Supply of New Orleans and its Improvement," by Robert Spurr Weston, Boston, Mass.

"The Identity of Human and Avian Diphtheria," by Dr. F. C. Harrison, Guelph, Canada.

In the matter of disinfection and disinfectants the preference was given to formaldehyde gas. While the gas evolved from the combustion of methyl alcohol in the presence of incandescent platinum was thought to have rather more penetrating effect, the regeneration from formalin by the retort method was reported as being more uniform in re-

sults, and on the whole the most satisfactory. As our readers know, it has been our preference. Abundant moisture in the room, a certain amount of warmth and the rapid evolution of the gas were considered important.

At the yellow fever symposium on Wednesday evening the mosquito theory of the transmission of the disease was considered demonstrated and the opinion expressed that the quarantine methods should be modified in accordance therewith. The Louisiana Board of Health, however, represented on the floor by its President, Dr. Souchon, was not willing to accept any modifications, for the present at any rate. Although thoroughly satisfied as to the correctness of the mosquito theory so completely demonstrated by Surgeon Walter Reed of the Army and his assistants, we could but sympathize with the position of the Louisiana Board when we realized the awful responsibility resting upon them, and endorse their resolution not to take any chances whatever until time and larger experience with modified quarantines at less important ports finally settle the question. Besides, we had not forgotten that only a few years ago we felt entirely convinced of the correctness of the theory that malaria was conveyed through the drinking water, nor a certain article we published containing a mass of evidence in favor of this view that was simply overwhelming. And yet the water theory of malarial transmission now lies among the innumerable wrecks of medical theories which strew the shores of time. Make haste slowly in the face of such a responsibility as rests upon the sentinels guarding the mouth of the Mississippi seems to us wise.

The sad feature of the meeting was the absence of Dr. Reed, the First Vice-President, who only a few weeks before died of appendicitis in Washington City. Dr. Reed, who was a native of Brunswick county in our sister State of Virginia, was a charming gentleman as well as great scientist, and his untimely taking off is an incalculable loss from every point of view. We heard one of the ablest members of the Association say that in his opinion the work done by Dr. Reed in Cuba in demonstrating so completely the mosquito theory of yellow fever transmission entitled him to a place alongside of Jenner as one of the great benefactors of his race. He achieved immortality by service of inestimable value to his fellow-men.

The Bubonic Plague.

This most dreaded of all epidemic diseases has been present in California, especially San Francisco, for some time, although the number of cases reported has been limited to less than ten in any one month. The Governor of the State and the State Board of Health denied the existence of the disease in the face of the positive findings of Dr. Kinyoun, at that time of the Marine Hospital Service, one of the best and most reliable bacteriologists of the country, and refused or neglected to take the precautions necessary to prevent its spread. To settle the dispute a commission of three dispassionate bacteriologists of high reputation outside the Service was sent to investigate. They reported the disease to be unquestionably plague. In consequence of the action of the State authorities of California a feeling of uncertainty and distrust was engendered.

The result of this was the passage of resolutions by the Conference of State and Provincial Boards of Health at its meeting the last week in October, at New Haven, suggesting that State Boards of Health unite in requesting the calling by the Surgeon-General of the U. S. Public Health and Marine Hospital Service of a conference to consider the matter. More than the requisite number of States (five under the law) have made the request, and Dr. Wyman announced at the meeting of the Public Health Association that he expected to call the conference of State Boards with his department for some date during the holidays.* We are very glad to know this. While it is said that California is now doing her duty, we can't feel as confident, in the light of past neglect or want of action, as we would like. The announcement of three cases of plague at the New York Quarantine Station in a certain sense brings it closer home to us. As a matter of fact, we feel much less uneasiness as to spread from that source than from California, with its loose management.

By concert of action between the U. S. and State health officials, we trust and believe that plague in this country will be stamped out.

Review of Diseases for November, 1902.

NINETY-THREE COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few phy-

sicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

MEASLES.—Craven, 3 cases; Harnett, a few; Person, a few; Polk, 1; Rockingham; Vance, in all parts—6 counties.

WHOOPING-COUGH.—Bladen, 2; Camden, 2; Chowan, several; Cleveland, several; Gates, in all parts; Harnett, a few; Henderson, 5; Richmond, a few; Rockingham; Sampson, many; Transylvania, a few; Wake, 15; Washington, 20—13 counties.

SCARLET FEVER.—Alamance, 1; Cabarrus, 2; Catawba, 1; Durham, 1; Granville, 8; Guilford, 4; Lenoir, several; Macon, 1; Madison, 5; Mitchell; New Hanover, 9; Person, a few; Randolph, a few; Stanly; Union, 2; Wake, 2; Yancey, a few—17 counties.

DIPHTHERIA.—Beaufort, 2; Bladen, 2; Brunswick, 8; Cabarrus, 2; Craven, 6; Durham, 1; Gaston, a few; Guilford, 2; Haywood, 3; Jones, 1; Macon, 1; Mecklenburg; New Hanover, 10; Onslow, 1; Polk, 1; Rutherford, 3; Stanly; Surry, 1; Swain, 2; Wake, 3—20 counties.

TYPHOID FEVER.—Alamance, 12; Alexander, a few; Alleghany, 3; Anson, a few; Ashe, a few; Beaufort, 4; Bladen, 8; Brunswick, 20; Burke, 1; Cabarrus, 7; Caldwell, 10; Catawba, 3; Chatham, a few; Cherokee, 5; Chowan, 1; Clay, a few; Cleveland, a few; Columbus, many; Craven, 2; Cumberland, a few; Curri-

tuck, 2; Dare, 6; Davidson; Durham, 3; Franklin, in nearly all parts; Gaston, a few; Gates, 1; Granville, 4; Greene, 20 or more; Guilford, many; Harnett, many; Haywood, 2; Hertford, 2; Iredell, many; Jackson, 1; Jones, 2; Lenoir, many; Lincoln, 5; Martin, 4; Mecklenburg; Mitchell; Montgomery, 10; Moore, 3; Nash, 5; New Hanover, 8; Northampton, several; Onslow, 2; Orange, 4; Pamlico, 2; Pasquotank, 3; Pender, a few; Person, a few; Polk, 4; Randolph, several; Richmond, 10; Robeson, several; Rockingham; Rutherford, 3; Sampson, several; Scotland, several; Stanly; Union, 30; Vance, general; Wake, 36; Warren, 3; Washington, 1; Watauga, several; Wilkes, 2; Yadkin, 2; Yancey, a few—70 counties.

MALARIAL FEVER.—Bertie; Bladen, general; Brunswick; Caswell; Craven; Currituck, in a few parts; Franklin, general; Hertford; Hyde, general; Iredell, general; Lenoir, general; Martin; Mitchell; Montgomery; New Hanover; Onslow; Pamlico; Person, a few; Randolph, in most parts; Robeson; Wake—20 counties.

MALARIAL FEVER, PERNICIOUS.—Brunswick, 1; Hertford, 2; Hyde, 2; Martin, 4; Mitchell; Randolph, a few; Robeson, 1; Wake, 1—8 counties.

MALARIAL FEVER, HEMORRHAGIC.—Carteret, 1; Martin, 4; Northampton, 2; Onslow, 3; Pamlico, 3.

BOWEL DISEASES.—Brunswick; Columbus.

INFLUENZA.—Pender; Rockingham, in all parts; Orange, in all parts; Stokes, in most parts.

MUMPS.—Cleveland, many; Hyde, in

lin; Perquimans, in all parts; Pender; Wayne, a few—9 counties.

VARICELLA.—Caswell; Sampson.

SMALL-POX.—Buncombe, 28; Burke, 10; Cabarrus, 4; Caldwell, 1; Cherokee, 7; Cleveland, a few; Craven, 30; Cumberland, 1; Forsyth, 30; Gaston, a few; Graham, 6; Guilford, 2; Iredell, 1; Jones, 4; McDowell, 17; Mecklenburg, 88; Onslow, 32; Randolph, 4; Surry, 51—"quarantined—impossible to get people to be vaccinated"; Swain, 30; Union, 32; Yadkin, 11—"all white, in western part of county."

CHOLERA, IN HOGS.—Durham, Martin, Northampton.

STAGGERS IN HORSES.—Rockingham; Union; Iredell reports an epidemic in horses of sudden blindness, followed by death.

No diseases reported from Carteret, Davie, Duplin, Edgecombe, Perquimans, Pitt and Wilson.

No reports received from Halifax, Johnston and Rowan.

all parts; Person, a few; Polk; Richmond, a few.

PNEUMONIA.—Alexander; Alleghany; Camden, 1; Caswell; Currituck; Frank-

**Summary of Mortuary Reports for
November, 1902.**

(TWENTY-FIVE TOWNS).

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population.....	80,400	57,550	137,950
Aggregate deaths..	104	126	230
Representing temporary annual death rate per 1,000	15.5	26.3	20.0
<i>Causes of Death.</i>			
Typhoid fever	4	7	11
Scarlet fever	3	0	3
Malarial fever.....	4	10	14
Diphtheria	3	1	4
Whooping-cough...	0	5	5
Pneumonia.....	8	13	21
Consumption	8	5	13
Brain diseases.....	10	4	14
Heart diseases.....	10	6	16
Neurotic diseases...	6	3	9
Diarrhoeal diseases	7	16	23
All other diseases..	40	53	93
Accident	0	2	2
Suicide.....	1	0	1
Violence	0	1	1
	104	126	230
Deaths under five years.....	28	59	87
Still-born....	5	13	18

Mortuary Report for November, 1902.

TOWNS AND REPORTERS	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.	
		RACES.	By Races
Charlotte{ Dr. F. O. Hawley.	W. 11,000 C. 7,200	18,200 31.7	14.2 21.1
Durham{ Dr. N. M. Johnson.	W. 8,000 C. 5,000	13,000 33.6	10.5 19.4
Edenton{ Dr. T. J. Hoskins.	W. 1,201 C. 1,800	3,000 6.0	0.0 4.0
Fayetteville{ Dr. John D. MacRae.	W. 2,500 C. 2,300	4,800 10.4	9.6 10.0
Goldsboro{ Geo. E. Hood, Mayor.	W. 3,500 C. 2,600	6,100 13.8	17.1 15.7
Greensboro{ Jno. S. Michaux, C. C.	W. 6,100 C. 4,000	10,100 27.2	5.9 14.2
Henderson{ Dr. F. R. Harris.	W. 2,100 C. 1,700	3,800 7.0	5.7 6.3
Laurinburg{ Dr. A. W. Hamer.	W. 900 C. 600	1,500 40.0	13.3 21.0
Lenoir{ Dr. A. A. Kent.	W. 1,200 C. 300	1,500 0.0	0.0 0.0
Lexington{ J. H. Moyer, Mayor.	W. 800 C. 500	1,300 0.0	15.0 9.2
Marion{ Dr. B. A. Cheek.	W. 800 C. 400	1,200 0.0	30.0 29.0
Monroe{ Dr. J. M. Blair.	W. 1,900 C. 600	2,500 20.0	6.3 9.6
Oxford{ Dr. S. D. Booth.	W. 1,200 C. 1,100	2,300 0.0	10.0 5.2
Raleigh{ T. P. Sale, Clerk B. H.	W. 8,000 C. 5,800	13,800 20.7	24.9 22.6
Rocky Mount{ Dr. G. L. Wimberley, Jr.	W. 1,600 C. 1,500	3,100 0.0	22.5 11.6
Salem{ T. E. Keehln, Esq.	W. 3,300 C. 350	3,650 0.0	10.9 9.9
Salisbury{ Dr. W. W. McKenzie.	W. 3,900 C. 2,500	6,400 9.6	33.8 24.4
Southport{ Dr. D. I. Watson.	W. 900 C. 500	1,400 0.0	0.0 8.6
Tarboro{ Dr. Wm. J. Thigpen.	W. 2,000 C. 500	2,500 0.0	0.0 72.0
Wadesboro{ Dr. J. H. Bennett.	W. 1,000 C. 700	1,700 0.0	0.0 0.0
Washington{ Dr. Jno. G. Blount.	W. 3,000 C. 2,500	5,500 57.6	12.0 32.7
Waynesville{ T. Stringfield, Mayor.	W. 1,000 C. 300	1,300 0.0	12.0 9.2
Weldon{ J. T. Goode, Mayor.	W. 700 C. 893	1,500 0.0	17.1 8.0
Wilmington{ Dr. Chas. T. Harper.	W. 10,000 C. 11,000	21,000 34.9	26.4 30.8
Wilson{ Dr. W. S. Anderson.	W. 3,800 C. 3,000	6,800 56.0	12.6 31.8

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. A. Cheek.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blonnt.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin
Brunswick	Dr. J. A. McNeill.	Mitchell.....	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. Oscar Patton	Pender.....	Dr. R. J. Williams
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughing- house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. F. J. Garrett.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. E. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. W. J. Thigpen.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. J. A. Cooper.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Dr. Goode Cheatham.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. E. M. Gayle.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watanga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. R. A. Campbell.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton		

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., Pres., Wilmington.
S. WESTRAY BATTLE, M. D....Asheville.
HENRY W. LEWIS, M. D.....Jackson.
J. L. NICHOLSON, M. D.....Richlands.

W. P. IVEY, M. D.....Lenoir.
FRANCIS DUFFY, M. D.....New Bern
W. H. WHITEHEAD, M. D.....Rocky Mt.
J. L. LUDLOW, C. E.....Winston.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XVII.

JANUARY, 1903.

No. 10

Plague Conference.

In compliance with the request of the health authorities of sixteen States, the District of Columbia and the Indian Territory, Surgeon-General Wyman of the U. S. P. H. and M. H. Service, called a conference of the above with himself, as requested by the new law, for Monday, the 19th inst., at Washington, to consider the plague situation in California. This was deemed necessary by those making the request because of the persistent denial by the recent Governor and the State Board of Health of the existence of the bubonic plague in San Francisco in the face of the positive assertion of the fact by several of the best bacteriologists in the country, and their consequent failure to take the necessary precautions to prevent its spread. This shameful state of affairs caused such anxiety on the part of the health officers of other communities that it was felt necessary to take action to com-

pel in some way the authorities of San Francisco and California to do their duty in the premises.

A preliminary meeting of the delegates from the different boards of health, including the representative of the California Board, who had just been appointed by the new Governor, Dr. Pardee, was held Sunday night, and during the several hours of its sitting some extremely plain talk was indulged in.

At the morning session of the Conference next day the general discussion of the situation occupied the time, and at the afternoon session action was taken. A good account of this last session is given in the appended report taken from the *Star*. It should be said, however, that the resolution proposing to advise the Secretary of War that there is danger in bringing troops through San Francisco was adopted, but as it was a close vote it was thought best to reconsider it and postpone it as unfinished business to the next general Con-

ference of all the State Boards, which will be held in the spring. This suggestion, and the fact that it has not been abandoned, but is still in the air, in view of the strenuous effort now being made by Seattle for the transfer of the Philippine transport service to its port, inasmuch as it touches the pocket nerve of San Francisco and California, will doubtless do more to bring about efficient action than anything else.

There have been ninety-three cases of plague since the first case was discovered in March, 1900—six whites, four Japanese and the remainder Chinese, with three recoveries. The number of cases has steadily increased with each succeeding year, and the character of the disease has become more dangerous to others, pneumonic and tonsillar, instead of bubonic, as at first.

The following is the *Star's* report:

The plague conference called by Surgeon-General Wyman and composed of representatives of boards of health of different States late yesterday afternoon reconsidered the resolution requesting Dr. Gardner of California to secure certain assurances from the Governor of California and the Mayor of San Francisco relative to the suppression of the plague and laid it on the table.

The following resolution was adopted:

"The presence of plague in California is established beyond debate by:

"1. The investigations of Kellogg of the San Francisco board of health, Rykogel for the California State board of health and Kinyoun for the United States marine hospital service.

"2. By the later investigations of Pillsbury for the State board of health, and by those of J. White, M. White, Flint, Currie, Carmichael, Blue and Glennan

for the United States marine hospital service.

"3. By the findings of Flexner, Barker and Novy, composing a special committee, acting under Federal authority.

"4. By the findings of independent and disinterested investigators (supplied with materials from autopsies made at San Francisco and working in San Francisco, Chicago, Boston, New York, Washington, Baltimore, Philadelphia and Ann Arbor).

"5. By the occurrence of a case of human plague in Ann Arbor, due to an accident in the manufacture of Haffkine's prophylactic fluid with a culture of plague bacillus obtained in California.

"6. By the autopsy records of ninety cases of plague now in the possession of the United States marine hospital service and of the San Francisco board of health and published in part in the Occidental Medical Times of San Francisco."

The next resolution adopted was as follows:

INJURY TO COMMUNITY.

"The presence of plague in any community where proper restrictions are not taken to prevent its spread is an injury to the best interests of that community. Such injury is in any case avoidable by the proper co-operation of all interests involved, commercial, professional and governmental. This conference regards the habitual publication of the actual facts relative to infectious disease and preventive procedures as the surest route to popular confidence, and is one of the means best adapted to minimize the injury liable to result from the presence of such diseases."

The following resolutions also were

adopted, but after considerable discussion:

"The present danger to California and to the United States lies primarily in the persistence, during nearly three years, of a definite *nidus* of plague infection in that part of San Francisco known as Chinatown; but the gravity of this circumstance is greatly increased by the gross neglect of official duty by the State board of health of California and the obstructive influence of the recent governor of California, by the failure of the city government of San Francisco to support its city board of health, and by the obstacles opposed to the operations of the United States public health service.

"The conference will consider the safety of the country sufficiently assured as soon as satisfied that a competent city board of health of San Francisco, and a competent State board of health, in co-operation with the United States public health service, will proceed under definite, harmonious and effective laws and ordinances; that they are provided with ample funds; and that they are jointly and severally in the free exercise of their lawful powers."

DESERVED WELL OF CALIFORNIA.

The following also was adopted:

"The conference expresses its conviction that the United States public health service has deserved well of the State of California and of the country, and that it would go far toward the restoration of popular confidence if the United States public health officials were admitted to the same relations with the State board of health as have been steadily maintained with the city board of health of San Francisco.

"The praise of this conference and the gratitude of the city of San Francisco are due to Drs. John M. Williamson, Vincent P. Buckley, W. B. Lewitt, Rudolph W. Baum, Louis Bazett and Dr. McCurtley of the city board of health of San Francisco. These men possess the unreserved confidence of the executive health officers of the country."

There was a disposition on the part of some members of the conference to adopt radical measures. A resolution was offered proposing that the Secretary of War be advised that there is danger in bringing troops through the city of San Francisco. Surgeon-General Wyman advised against the adoption of this resolution. Another proposed placing an embargo on railroads leading out of California unless certain steps were taken by the health authorities toward the suppression of the plague. Neither of these resolutions was adopted.

WOULD ASSUME CHARGE.

It was decided to send copies of the resolutions adopted to the State and city boards of health with a request that they make a statement as to their proposed plans.

Dr. Gardner said an impression prevailed that the situation in San Francisco was in charge of the marine hospital service. Surgeon-General Wyman explained that the local health officers were in charge, but in answer to Dr. Gardner said the marine hospital service would assume charge if directly requested by the Governor of California and the city authorities.

Dr. John S. Fulton of Maryland read two communications—one from an officer of the Mexican board of health, stating the situation in Ensanada and

Mazatlan, and inferring that its presence in Mexico was due to a faulty clearance of ships from San Francisco. On motion of Dr. H. M. Bracken of Minnesota it was voted to acknowledge receipt of the communication and assure the Mexican authorities that every precaution would in future be taken not only with vessels bound for lower Pacific coast ports, but all vessels clearing from San Francisco.

The afternoon session brought the conference to a close and adjournment *sine die* was taken.

Biological Laboratories and Public Health.

By GERALD McCARTHY,
Biologist N. C. Department Agriculture.

Modern times are distinguished from former ages chiefly by the greater extent to which rational scientific methods are applied to human wants. More especially is this true as regards the methods of dealing with contagious diseases. Formerly nations and continents were ravaged by cholera, plague and similar epidemics. People considered these diseases as "visitations of Providence," to be combatted only by prayer and resignation. Science, however, now tells us that such diseases are due primarily to filth and the neglect of very simple health rules. Nations educated in the importance of private and public hygiene are no longer subject to such "visitations," or if by accident or the neglect of neighbors these diseases get a foot-hold in any community they are soon dislodged.

The chief carrier of contagious diseases is water. Water is an aliment neces-

sary to human life. More than fifty-eight per cent. of the human body is water; seventy per cent. of the blood is water. Water is also the great scavenger and solvent of nature. It dissolves and carries from place to place faecal matter, together with the germs and poisons such matter usually contains. Hence it is that this substance so necessary is at the same time so dangerous, unless watched and its quality controlled by scientific methods.

Formerly in this country large cities were few. People lived upon isolated farms or homesteads supplied with water from private wells or springs not exposed to pollution from excessive population. Of recent years the tendency has been to gather people into large cities and towns. In such places it is no longer safe to depend upon private water supplies. Where the population is congested the soil soon becomes permanently infected with filth and the disease-breeding organisms which normally live upon such matter. The water which falls upon such polluted soil dissolves part of the surface filth and carries it down into the lower strata of the soil, from which it soon finds its way into the shallow holes called wells. But even when cities abandon wells as water supplies and depend upon a general supply taken from some neighboring stream, the danger of obtaining polluted water is still considerable. Usually large streams have more than one town upon their banks and smaller streams are exposed to the drainage from hamlets and houses. In any of these places sporadic cases of typhoid or other contagious disease may exist, and the excreta from the body of the sick persons as a rule carelessly thrown

upon the ground or into shallow privy pits, from which it soon finds its way or is carried by water into the nearest stream and so into the water supply of towns below. This is not a mere hypothetical or remotely possible case. In this very way hundreds of recorded epidemics and thousands of deaths have been caused!

According to the last published report of the North Carolina State Board of Health the number of deaths annually caused by typhoid fever in North Carolina is over 1,000. There are about ten times as many cases of long sickness due to the same disease. In England, where the population is more dense and human life cheaper than with us, the average money value of a life is \$717. In the United States some statisticians place the money value of a healthy man at \$5,000. In cases of typhoid fever the average bill for medical attendance and medicine is \$30. The loss of wages for the period of sickness will average about \$60 for each case. It is a very conservative estimate to place the number of these North Carolina typhoid cases due to neglect, and preventable by reasonable hygienic measures, at one-half of the whole number stated above. The annual preventable loss to the people and State of North Carolina alone from typhoid fever is not less than \$385,000. To this we must add the preventable losses due to the ravages of malaria, diphtheria, consumption and other contagious diseases. The total will not fall short of \$1,000,000. This sum may be called the filth tax of the State.

The satisfactory application of scientific preventive measures to public hygiene requires a central authority clothed with power to inspect, investigate, ad-

vise and coerce stubborn and ignorant local authorities and individuals. This fact has led to the creation of boards of health in most States. These boards are nearly everywhere looked upon as necessary evils. They are nowhere popular, nor much respected except in time of epidemics, when they are often called upon to save the people from the results of the people's own ignorance or wilful disregard of necessary health rules. Yet the real and permanent protection of the public from spread of contagious diseases is rendered possible only by the constant and vigilant care of these little-thanked boards and their officers. There is no more important duty devolving upon the responsible law-making power than to provide efficient means for guarding the public from the unnecessary ravages of contagious diseases, due in practically all cases to the negligence of people other than those who directly suffer from the diseases.

Typhoid fever, cholera, plague, malaria, consumption and other contagious diseases are all caused by bacteria or "germs." These are extremely minute organisms of the nature of plants. The scientific study of these organisms is called bacteriology. Bacteriology is a very modern science. The first to apply the principles of bacteriology in a rational way to human and animal hygiene was Louis Pasteur, whose work was done about the middle of the last century. Pasteur showed how to prevent "Black-leg" in cattle and how to save people from rabies when caused by bites of rabid animals. He also saved the silk industry of the world from destruction by "Pebrine," a disease of silk worms due to a bacillus or "germ."

As water is the great carrier of con-

tagion, the bacteriological analysis of water, and the guarding of public water supplies by this means, is the most valuable application of the science to public hygiene. Of all the American commonwealths Massachusetts stands first among those which make serious endeavors to protect the public water supplies and public health. That State pays \$60,000 annually for the maintenance of its board of health, and considers the money well spent. In a recent communication to the writer the Secretary of the Massachusetts Board said that they considered their bacteriological laboratory the most efficient instrument they possessed in their work. "It is indispensable." The only Southern States which make any real effort to guard against pollution of water supplies are Louisiana and North Carolina. Both these States have boards of health which rank among the best in the Union. The bacteriological work of the North Carolina Board is at present done in the laboratory of the State Department of Agriculture, by courtesy of the Board of Agriculture, and at the expense of the farmers of the State. This work was begun only two years ago, but has grown so fast that it now requires more time than the facilities of the Department of Agriculture will permit. North Carolina is a large State, and there is a very great amount of work to be done if the State Board of Health is going to make a serious attempt to stop the enormous annual loss due to preventable, contagious diseases. As we have shown, a very small portion of the preventable annual loss will go a great way towards providing for such prevention. It is very unwise policy to fail to support the State Board of Health in its efforts to prevent the

annual loss by filth diseases. The Board should have its own laboratory and one or more analysts who will devote their whole time to its work. The State Board of Agriculture has been very generous in giving its laboratory and a large part of the time of one man to health analyses for the past two years. It is now the duty of the Legislature to provide for this work out of the general funds of the State and relieve the Agricultural Department of the expense.

The bacteriological analyses made for the State Board of Health during the last two years amount to nearly 700. Most of these were water samples. Many samples of milk were examined for the germ of tuberculosis, a large number of swabbings from the throats of children suspected of having diphtheria, and many samples of sputum from the throats of persons supposed to have consumption were examined and reported to the physicians who sent the samples. The amount of good done by this work, as we are informed by the physicians who have most patronized the laboratory, has been very large. The work has been abundantly appreciated by the profession and should be made a permanent part of the State hygienic establishment, and be directly under the control of the Board of Health.

Review of Diseases for December, 1902.

NINETY COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few phy-

sicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

MEASLES.—Craven, 4 cases; Polk, 1; Rockingham.

WHOOPING-COUGH.—Camden, several; Chowan, several; Cleveland, a few; Gates; Lenoir, several; McDowell, 3; Pamlico, several; Richmond, several; Rockingham; Rowan, 6; Sampson, several; Transylvania, 3; Wake, 21; Washington, 40; Yancey—15 counties.

SCARLET FEVER.—Cabarrus, 3; Caldwell, 1; Catawba, 3; Davidson, 2; Durham, 1; Guilford, 7; Halifax, 3; Hyde, 2; Martin, 1; New Hanover, 5; Richmond, 1 or 2; Rowan, 3; Wilkes, 3—13 counties.

DIPHTHERIA.—Brunswick, 4; Cabarrus, 2; Cleveland, a few; Columbus, several; Craven, 3; Davidson, 1; Halifax, 8; Haywood, 2; Henderson, 1; Iredell, 1; Lenoir, several; Macon, 2; Surry, 6—13 counties.

TYPHOID FEVER.—Ashe, 3; Beaufort, 2; Bladen, a few; Brunswick, 3; Caldwell, 2; Catawba, 2; Chatham, several; Chowan, 2; Clay, 2; Cleveland, several; Columbus, several; Davidson, several; Edgecombe, a few; Franklin, in many parts; Gaston, 10; Gates, 4; Graham, 1; Granville, 1; Haywood, several; Iredell, a few; Jones, 1; Lenoir, many; Lincoln, 4; Martin, 2; Montgomery, 4; Nash, 3; New Hanover, 6; Northampton, several; Onslow, 2; Orange, 2; Pender, a few; Polk, 2; Randolph, several; Robeson, several; Rockingham, a few; Rowan, 2; Sampson, a few; Scotland, a few; Stanly; Stokes, 1; Surry, 2; Swain, 1; Union, 10; Wake, 17; Watauga, 2; Wayne, 1 or 2; Wilkes, 1; Yadkin, 2; Yancey, a few—50 counties.

MALARIAL FEVER.—Brunswick; Chowan; Currituck, a few; Davidson; Edgecombe; Franklin, in many parts; Iredell, a few; Johnston; Martin; Onslow; Sampson; Vance; Washington—13 counties.

MALARIAL FEVER, PERNICIOUS.—Brunswick, 1; Chowan, 1; Davidson, 1; Edgecombe, 1; Vance, 1—5 counties.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 1; Martin, 1; Onslow, 2; Vance, 1; Washington, 1—5 counties.

BOWEL DISEASES.—Currituck.

INFLUENZA.—Alexander, in all parts; Brunswick; Currituck; Henderson; Iredell, in all parts; Montgomery; New Hanover; Orange; Person; Richmond; Robeson; Rockingham; Sampson; Stokes; Surry; Vance, in all parts; Wilkes, in all parts—17 counties.

MUMPS.—Cleveland; Hyde, in all parts; McDowell; Pamlico; Polk—5 counties.

PNEUMONIA.—Catawba; Franklin; Gaston, a few; Halifax; Johnston; Macon; Orange; Perquimans, a few; Randolph; Rockingham; Scotland, a few—11 counties.

TONSILLITIS.—Burke; Davidson; Orange.

VARICELLA.—Scotland.

SMALL-POX.—Buncombe, 15; Cabarrus, 3; Caldwell, 5; Cleveland, 5; Craven, 34—"under control—enforced vaccination throughout county pushed vigorously";

Davie, 1; Forsyth, 5; Gaston, a few—"compulsory vaccination was rigidly enforced at King's Mountain, with the result that the epidemic is over"; Graham, 2; Guilford, 2; Henderson, 2; Jones, 9; Lincoln, 8; McDowell, 20; Mecklenburg, 126; Onslow, 44, 2 deaths; Polk, 2; Randolph, 2; Rockingham, 4; Rowan, 1; Rutherford, 3; Surry, 26; Swain, 10; Transylvania, 4; Union, 6; Wake, 1; Yadkin, 2—"one case fatal, uncomplicated, in a good family—no trouble to get people vaccinated now"—27 counties.

CHOLERA, IN CHICKENS.—Gates.

CHOLERA, IN HOGS.—Hertford; Martin.

STAGGERS, IN HORSES.—Dare; Sampson; Union.

No diseases reported from Alamance, Anson, Bertie, Carteret, Cumberland, Dare, Duplin, Hertford, Madison, Moore, Pitt, Warren and Wilson.

No reports received from Caswell, Cherokee, Greene, Harnett, Mitchell and Pasquotank.

**Summary of Mortuary Reports for
December, 1902.**

(TWENTY-SIX TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	83,300	58,800	142,100
Aggregate deaths..	103	117	220
Representing temporary annual death rate per 1,000	14.8	23.9	18.6
<i>Causes of Death.</i>			
Typhoid fever	5	1	6
Malarial fever.....	0	3	3
Diphtheria	2	0	2
Whooping-cough..	0	1	1
Pneumonia.....	13	12	25
Consumption	11	18	29
Brain diseases.....	10	4	14
Heart diseases.....	12	13	25
Neurotic diseases...	1	3	4
Diarrhoeal diseases	3	2	5
All other diseases..	40	56	96
Accident	3	4	7
Suicide..	3	0	3
	103	117	220
Deaths under five years.....	24	34	58
Still-born....	12	14	26

MORTUARY REPORT FOR DECEMBER, 1902.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.	TOTAL, BY RACES.												
			By Races.			Total.			By Races.			Total.			Deaths under five years.
RACES.	By Races.	Total.	Total.	By Races.	Total.	Total.	By Races.	Total.	Total.	Total.	Total.	By Towns.	Deaths.	Total.	Deaths.
Charlotte	W. 11,000	10.9	15.2	Typhoid Fever.											
Dr. F. O. Hawley.	C. 7,200	21.7	21.7	Scarlet Fever.											
Durham	W. 8,000	15.0	16.6	Malaria Fever.											
Dr. N. M. Johnson.	C. 5,000	26.4	26.4	Diphtheria.											
Edenton	W. 1,200	10.0	20.0	Whooping-cough.											
Dr. T. J. Hoskins.	C. 1,800	26.7	26.7	Measles.											
Fayetteville	W. 2,500	11.4	12.5	Pneumonia.											
Dr. John D. MacRae.	C. 2,300	10.4	10.4	Consumption.											
Goldsboro	W. 3,500	6.100	21.0	25.6	1	1	1	1	1	1	1	1	1	1	1
Geo. E. Hood, Mayor.	C. 2,600	27.7	27.7	2	1	1	1	2	2	2	2	2	13	2	1
Greensboro	W. 6,100	3.9	21.4	1	1	1	1	1	1	1	1	1	1	1	1
Jno. S. Michaux, C. C.	C. 4,000	45.0	45.0	4	1	1	4	1	1	8	1	15	48	6	1
Henderson	W. 2,100	5.7	6.3	1	1	1	1	1	1	1	1	1	1	2	1
Dr. F. R. Harris.	C. 1,700	7.1	7.1	Measles.											
Laurinburg	W. 900	40.0	32.0	1	1	1	1	1	1	1	1	1	3	4	1
Dr. A. L. Franklin.	C. 600	20.0	20.0	1	1	1	1	1	1	1	1	1	1	1	1
Lenoir	W. 1,200	0.0	0.0	1	1	1	1	1	1	1	1	1	0	0	0
Dr. A. A. Kent.	C. 300	0.0	0.0	1	1	1	1	1	1	1	1	1	0	0	0
Lexington	W. 800	15.0	9.2	1	1	1	1	1	1	1	1	1	1	1	1
J. H. Moyer, Mayor.	C. 500	1,300	0.0	1	1	1	1	1	1	1	1	1	0	0	0
Marion	W. 800	15.0	20.0	1	1	1	1	1	1	1	1	1	1	2	1
Dr. P. A. Cheek.	C. 400	30.0	30.0	1	1	1	1	1	1	1	1	1	1	1	1
Monroe	W. 1,900	2,500	6.3	4.8	1	1	1	1	1	1	1	1	1	1	1
Dr. J. M. Blair.	C. 600	0.0	0.0	1	1	1	1	1	1	1	1	1	0	0	0
Oxford	W. 1,200	2,300	0.0	5.2	1	1	1	1	1	1	1	1	0	1	1
Dr. S. D. Booth.	C. 1,100	19.9	19.9	1	1	1	1	1	1	1	1	1	1	1	1
Raleigh	W. 8,900	13,800	16.5	16.5	1	3	1	3	2	1	11	19	2	0	0
T. P. Sale, Clerk B. H. T.	C. 5,800	16.5	16.5	1	3	1	3	4	1	8	4	8	4	0	0
Reidsville	W. 2,900	4,200	20.7	22.8	1	1	1	1	4	1	5	8	1	1	1
Jas. T. Smith, C. C.	C. 1,300	0.0	0.0	1	1	1	1	1	1	3	0	3	0	0	0
Rocky Mount	W. 1,000	3,100	15.0	11.6	2	2	2	2	2	2	2	3	1	1	1
Dr. G. L. Wimberley, Jr.	C. 1,500	8.0	8.0	1	1	1	1	1	1	1	1	1	1	1	1
Salem	W. 3,300	3,650	19.9	13.1	3	3	3	3	3	3	3	3	4	1	1
T. E. Keehly, Esq.	C. 350	34.3	34.3	1	1	1	1	1	1	1	1	1	1	1	1
Salisbury	W. 3,300	6,400	21.6	24.4	2	2	2	2	2	2	1	7	13	1	1
Dr. W. W. McKenzie.	C. 2,500	28.8	28.8	2	2	2	2	2	2	2	2	6	4	0	0
Southport	W. 900	1,400	26.7	17.1	1	1	1	1	1	1	1	2	2	0	0
Dr. D. I. Watson.	C. 500	0.0	0.0	1	1	1	1	1	1	1	1	0	0	0	0
Tarboro	W. 2,000	2,500	18.0	19.2	1	1	1	1	1	1	1	3	4	1	1
Dr. Wm. J. Thigpen.	C. 500	21.0	21.0	1	1	1	1	1	1	1	1	1	1	1	1
Wadesboro	W. 1,000	1,700	24.0	14.1	1	1	1	1	1	1	1	2	2	1	1
Dr. J. H. Bennett.	C. 700	0.0	0.0	1	1	1	1	1	1	1	1	0	0	0	0
Washington	W. 3,000	5,500	21.0	26.2	1	2	1	1	1	1	1	6	12	1	1
Dr. Jno. H. Blount.	C. 2,500	28.8	28.8	1	1	1	1	1	1	3	0	6	0	0	0
Waynesville	W. 1,000	1,300	0.0	0.0	1	1	1	1	1	1	1	0	0	0	0
T. Strongfield, Mayor.	C. 300	0.0	0.0	1	1	1	1	1	1	1	1	0	0	0	0
Weldon	W. 700	1,450	51.4	11.4	2	2	2	2	1	1	1	3	5	1	1
J. T. Goode, Mayor.	C. 750	32.0	32.0	1	1	1	1	1	1	2	2	2	1	1	1
Wilmington	W. 10,000	21,000	22.8	28.6	1	4	1	3	1	8	19	50	6	3	3
Dr. Chas. T. Harper.	C. 11,000	33.8	33.8	1	1	1	2	2	2	6	14	31	7	6	6
Wilson	W. 3,800	6,800	6.3	8.8	1	1	1	1	1	1	1	2	5	2	2
Dr. W. S. Anderson.	C. 3,000	12.0	12.0	1	1	1	1	1	1	3	3	3	0	0	0

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	.....	Dr. H. R. Moore.
Alexander	.....	Dr. C. J. Carson.
Alleghany	.....	Dr. Robt. Thompson.
Anson	.....	Dr. J. H. Bennett.
Ashe	.....	Dr. J. W. Colvard.
Beaufort	.....	Dr. Jno. G. Blount.
Bertie	.....	Dr. H. V. Dunstan.
Bladen	.....	Dr. L. B. Evans.
Brunswick	.....	Dr. J. A. McNeill.
Buncombe	.....	Dr. E. B. Glenn.
Burke	.....	Dr. J. L. Laxton.
Cabarrus	.....	Dr. R. S. Young.
Caldwell	.....	Dr. A. A. Kent.
Camden	.....	Dr. J. L. Lister.
Carteret	.....	Dr. F. M. Clark.
Caswell	.....	Dr. S. A. Malloy.
Catawba	.....	Dr. Geo. H. West.
Chatham	.....	Dr. H. T. Chapin.
Cherokee	.....	Dr. Oscar Patton.
Chowan	.....	Dr. T. J. Hoskins.
Clay	.....	Dr. J. O. Nichols.
Cleveland	.....	Dr. B. H. Palmer.
Columbus	.....	Dr. I. Jackson.
Craven	.....	Dr. N. H. Street.
Cumberland	.....	Dr. Jno. D. McRae.
Currituck	.....	Dr. H. M. Shaw.
Dare	.....	Dr. W. B. Fearing.
Davidson	.....	Dr. Joel Hill.
Davie	.....	Dr. James McGuire.
Duplin	.....	Dr. O. F. Smith.
Durham	.....	Dr. N. M. Johnson.
Edgecombe	.....	Dr. W. J. Thigpen.
Forsyth	.....	Dr. John Bynum.
Franklin	.....	Dr. E. S. Foster.
Gaston	.....	Dr. J. H. Jenkins.
Gates	.....	Dr. W. O. P. Lee.
Graham	.....	Dr. R. J. Orr.
Granville	.....	Dr. S. D. Booth.
Greene	.....	Dr. Joseph E. Grimsley.
Guilford	.....	Dr. Edmund Harrison.
Halifax	.....	Dr. I. E. Green.
Harnett	.....	Dr. O. L. Denning.
Haywood	.....	Dr. S. B. Medford.
Henderson	.....	Dr. J. G. Waldrop.
Hertford	.....	Dr. J. H. Mitchell.
Hyde	.....	Dr. E. H. Jones.
Iredell	.....	Dr. R. A. Campbell.
Jackson	.....	Dr. R. L. Davis.
Johnston	.....	Dr. L. D. Wharton.
Jones	.....	Dr. S. E. Koonee.
Lenoir	.....	Dr. C. L. Pridgen.
Lincoln	.....	Dr. T. F. Costner.
McDowell	.....	Dr. B. A. Cheek.
Macon	.....	Dr. F. L. Siler.
Madison	.....	Dr. Jas. K. Hardwicke.
Martin	.....	Dr. W. H. Harrell.
Mecklenburg	.....	Dr. C. S. McLaughlin.
Mitchell	.....	Dr. V. R. Butt.
Montgomery	.....	Dr. M. P. Blair.
Moore	.....	Dr. Gilbert McLeod.
Nash	.....	Dr. J. P. Battle.
New Hanover	.....	Dr. W. D. McMillan.
Northampton	.....	Dr. H. W. Lewis.
Onslow	.....	Dr. E. L. Cox.
Orange	.....	Dr. D. C. Parris.
Pamlico	.....	Dr. H. P. Underhill.
Pasquotank	.....	Dr. J. E. Wood.
Pender	.....	Dr. R. J. Williams.
Perquimans	.....	Dr. C. C. Winslow.
Person	.....	Dr. J. A. Wise.
Pitt	.....	Dr. C. O'H. Laughinghouse.
Polk	.....	Dr. Earle Grady.
Randolph	.....	Dr. S. A. Henley.
Richmond	.....	Dr. F. J. Garrett.
Robeson	.....	Dr. H. T. Pope.
Rockingham	.....	Dr. Sam Ellington.
Rowan	.....	Dr. W. L. Crump.
Rutherford	.....	Dr. T. B. Twitty.
Sampson	.....	Dr. R. E. Lee.
Scotland	.....	Dr. A. W. Hamer.
Stanly	.....	Dr. V. A. Whitley.
Stokes	.....	Dr. W. V. McCanless.
Surry	.....	Dr. John R. Wolz.
Swain	.....	Dr. A. M. Bennet.
Transylvania	.....	Dr. C. W. Hunt.
Tyrrell	.....	.
Union	.....	Dr. John M. Blair.
Vance	.....	Dr. H. H. Bass.
Wake	.....	Dr. J. J. L. McCullers.
Warren	.....	Dr. E. M. Gayle.
Washington	.....	Dr. W. H. Ward.
Watauga	.....	Dr. T. C. Blackburn.
Wayne	.....	Dr. Williams Spicer.
Wilkes	.....	Dr. W. P. Horton.
Wilson	.....	Dr. W. S. Anderson.
Yadkin	.....	Dr. M. A. Royall.
Yancey	.....	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

N. D.

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N. G.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., Pres., Wilmington.	W. P. IVEY, M. D.....Lenoir.
S. WESTRAY BATTLE, M. D....Asheville.	FRANCIS DUFFY, M. D.....New Bern.
HENRY W. LEWIS, M. D.....Jackson.	W. H. WHITEHEAD, M. D.....Rocky Mt.
J. L. NICHOLSON, M. D.....Richlands.	J. L. LUDLOW, C. E.....Winston.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XVII.

FEBRUARY, 1903.

No. 11.

A BILL to be Entitled An Act to Define the Practice of Medicine and Surgery.

As a majority of our readers is made up of the members of the medical profession in the State, we take it that we could hardly print anything of more interest than something about the bill of the above title now pending in the General Assembly. It was introduced in the House, referred to the Committee on Health, favorably reported and passed by that body on February 7th. On the 9th, at the instance of the attorneys for the opposition, it was recalled and referred. On the 17th a hearing was had in the Senate Chamber before the joint Committee on Health of the two houses. The Secretary appeared for the bill, and three prominent lawyers and the leader of the Christian Scientists in this State against. There was quite a large attendance, including a number of the disciples of Mrs. Eddy, and much interest was shown in the discussion. At its conclusion the hour was so late

that no vote was had by the committee. At a subsequent meeting, however, on the 19th, it was reported favorably, and at this writing is pending in the House. We give below the bill and an abstract of the argument for it. In order to meet the constitutional objections to the bill raised by the attorneys for the Christian Scientists, the last two paragraphs have been added, and a copy of the whole as it appears furnished to each member of the Legislature. While everything in the power of able counsel is being done against the bill, the present outlook is encouraging:

A BILL TO BE ENTITLED AN ACT TO DEFINE
THE PRACTICE OF MEDICINE
AND SURGERY.

*The General Assembly of
North Carolina do enact:*

SECTION 1. That section three thousand one hundred and twenty-two of The Code be amended by adding thereto the following words: For the purposes of

this act the expression "practice of medicine or surgery" shall be construed to mean the management or treatment, for fee or reward, of any case of disease, physical or mental, real or imaginary, with or without drugs, surgical operation, surgical or mechanical appliances, or by any other method whatsoever: *Provided*, that this shall not apply to midwives, nor to nurses acting under the direction of a registered physician.

SEC. 2. That this act shall be in force from and after its ratification.

ABSTRACT OF ARGUMENT FOR THE BILL
ENTITLED AN ACT TO DEFINE THE
PRACTICE OF MEDICINE
AND SURGERY.

The State Board of Health is required by the law, section 3, chapter 214, Laws of 1893, to "direct the attention of the State" to matters affecting the "health and lives of the people." Incompetent physicians constitute one of the greatest menaces to the public health. The State realized this forty-four years ago, since which time all physicians, no matter how highly educated, have been required to prove their competency to a board of examiners before being permitted to practice on the people. The result of this is that the medical profession of North Carolina to-day stands among the first in the Union.

The word "medicine" was supposed to mean the whole healing art, but our Supreme Court has decided that it means only drugs or ordinary surgical procedures. The consequence is that thoroughly educated physicians who prescribe remedial agents of every description, *including* drugs when indicated, as quinine in malarial fever, for instance, are

required to prove a good moral character, stand an examination and pay an annual license tax; while any person with or without character or knowledge who merely eschews the use of drugs, one only of the many remedial agencies, can follow the business of treating disease without tax or restriction of any kind.

The thorough education of the physician is necessary, to enable him to make the diagnosis, to tell what the disease is—the most difficult thing in the practice; and to insure his familiarity with all the best methods of treatment in order to qualify him to form an intelligent opinion as to which is the best for each particular case, whether by drugs, the knife, mechanical appliances, baths, massage, electricity, suggestion or what not. Regular physicians are sometimes called allopaths. As a matter of fact they utilize remedies of every description that have been proved to be good.

The effect of a mistaken diagnosis, or the denial of the existence of any disease, according to Christian Science, might be bad for the patient, but in *infectious* or *contagious* diseases, as small-pox, diphtheria and scarlet fever, for example, no sanitary precautions being taken, disastrous to the community, causing wide-spread disease and death and great expense to county or city in stamping out epidemics thus started.

Our entire health legislation is based on the registered physician, who has certain duties imposed on him, for failure to perform which he is liable to punishment. The healers are irresponsible.

The opponents of the bill are the osteopaths, those who believe in rubbing or massage for all kinds of disease, and

the disciples of Mrs. Eddy, a woman of New England, the land of fads and isms of all kinds, known as Christian Scientists, who assert that there is no such thing as matter or physical disease—all told probably not one thousand people, at a liberal estimate, in over two millions.

The essential work of "osteopathy" is done by trained nurses and masseurs, so they need not be considered further.

The plea of the Christian Scientists is that the bill violates the constitutional right to freedom of religion. The Constitution guarantees to every man liberty of conscience and the right to worship God according to its dictates. But when the bounds of religion proper, which is entirely spiritual, are overstepped and the material world is invaded with practices inimical to the welfare of the State, such practices, no matter how conscientiously and sincerely believed to be religious by their devotees, are forbidden by the State. Mormonism and polygamy, the Free-love Church and marriage, the Sozialist Church and property, are cases in point. While I do not mean, of course, to compare the Christian Scientists, who are excellent, good people, with the above in any moral sense, the same principle of State interference applies to them when they offer themselves to the public as healers of disease for fee or reward, a matter that this State assumed control of in 1859. They have a right, just as any licensed physician has a right, to give their services free, but when he makes a business of it and charges for it the State says you must show you are competent, and it should say the same to them. If there is no money in it it will not be practiced long, nor made the

means of conscious imposture. Cures, some of them apparently remarkable, have been effected by Christian Science, but the same things have been done by "mental science," magnetic healing," "faith cure," etc., in all of which the effective principle, according to learned men of science, has been mental suggestion. Thousands of years ago Aesculapius was so successful in this kind of work that he was worshipped as a god, and temples were built in his honor. At the same time, if you were sick, I believe you would rather have one of our good country doctors than Aesculapius, or even Mrs. Mary Baker Eddy herself.

Be not deceived by a few cures skillfully exploited by people who have the money and know how to advertise. Disastrous results can be cited. Consider the advertisements of patent medicines.

It is said that of twenty-four cases of sickness seventeen will recover without treatment, four will recover under intelligent treatment and three will die in spite of everything. It does not matter so much about the twenty, but how about the four in the hands of healers uneducated in the science and art of medicine and surgery.

In malarial fever shall we have a "demonstration," a rub or a dose of quinine? In diphtheria of the wind-pipe, with the child struggling for breath, a healer, or antitoxin and intubation? In strangulated hernia, with death staring a man in the face, Christian Science, or a licensed surgeon and a knife? And so on, through innumerable diseases, that every man of common sense knows nothing but material remedies will reach.

This bill was not aimed especially at the Christian Scientists, but from the

statement of their leader in this State, Miss Harrison, before the committee, that "the principle of Christian Science applies from a finger scratch to the last enemy, else it would not be of God"—in other words, that they will "tackle" any disease, whatever its nature or severity, it is plain that they are the most dangerous to the community of all the healers. An honest but misguided fanatic is always dangerous.

The plain, simple Christian people of our State, although they are not "scientists," are people of common sense as well as true religion, and while they believe in prayer in sickness, they believe in prayer *and* the intelligent use of the remedial agencies the Giver of all good things has vouchsafed to man.

The object and intent of the bill is not to prevent the use of any method of healing whatever, but simply to require all those who propose to make a business of treating the sick for fee or reward to show to the satisfaction of the State that they are competent to form an intelligent judgment as to the nature of the disease and the best method of treating it, for the protection of the people.

The Board of Medical Examiners is the only proper tribunal, because it is composed of men who have made a study of the whole subject and not of one very limited phase of it. It is a fair Board. Written examinations, under a *nom de plume*, and the character of the men composing it make it so. The fact that men are practising homeopathy and osteopathy under its license—a larger proportion of them having passed than of the regulars—proves it.

Failure to pass this bill would be tantamount to an invitation to the

quacks all over the country to come and loot our State. The General Assembly having considered the matter and failed to take action, it would appear to have at least tacit legislative sanction.

The failure of the bill or its crippling by amendment would be a sad blow to the cause of health in North Carolina.

THE BILL IS NOT AN ATTACK UPON
RELIGIOUS LIBERTY.

The Christian Scientists made every effort before the committee to shift the purpose of this bill from one to protect the public health to one having as its purpose the abridgment of religious liberty.

It is not necessary to call your attention to the fact that such a contention is without foundation. If this bill were a law, the Christian Scientists could go ahead holding their meetings, having their services, living up to their faith, giving demonstrations, attending the sick, just as they do now, provided always that their ministrations upon the sick were prompted by religious feeling or friendship and not for the sake of a fee or reward. It is a strange thing when those who profess to be followers of the meek and lowly Jesus in a more devoted manner, and with more exalted ideals than the common run of mortals, fight so hard for the privilege of charging for their services. Simon Magus in the olden time was severely reprimanded for proposing to make merchandise and profit out of holy things.

This bill leaves the Christian Scientists to follow their religious beliefs in any way they see fit, and permits them to practice medicine if they are willing to conform to the laws made and provided for other citizens of the State.

THE BILL IS CONSTITUTIONAL.

The attorneys for the Christian Scientists argued that this bill was unconstitutional for three reasons: First, because they said it abridged religious liberty. I have just discussed that point. They cited section one of the Bill of Rights about the inalienable right of people to the produce of their own labor, etc. In this specious plea they claimed to have an inalienable right to do things forbidden to other citizens. And again, they cited section seven, which is a declaration against exclusive and separate emoluments and privileges. But they overlook the humor of this plea and actually cite it as justification for their position, when they are asking privileges denied to all others, and ask to be allowed to practice a profession of healing the sick without complying with the law of the State or paying the tax, while all others have to do both. While making this claim, their attorneys make a solemn declaration against any class of citizens claiming exclusive or separate rights or emoluments or privileges. They cited section thirty-one of the Bill of Rights against perpetuities of monopolies, and their attorneys, after praising the medical profession, covertly threw out the suggestion that the physicians of this State were trying to create a monopoly. This was an unjust and I believe an unworthy intimation, and it is as groundless as it was unnecessary, because the doors of the medical profession are open to every class, race and sex, without regard to birth or station in life, upon the doing of three things: First, proving a good moral character, proving competence, and paying the tax required by the State.

Review of Diseases for January, 1903.

EIGHTY-SEVEN COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

MEASLES.—Caldwell, 25 cases; Pamlico, general; Rockingham; Rowan, 3; Stokes, 10; Surry, 20—6 counties.

WHOOPING-COUGH.—Beaufort, 2; Bertie, several; Bladen, a few; Camden, 1; Chowan, in all parts; Cleveland, a few; Cumberland, a few; Gates; McDowell, several; Moore; Pamlico, general; Randolph, a few; Richmond, a few; Rockingham, in all parts; Rowan, 4; Sampson, many; Stokes, 8; Transylvania, a few; Union, 10; Wake, 43; Washington, general—21 counties.

SCARLET FEVER.—Ashe, 2; Buncombe, 1; Cabarrus, 2; Durham, 1; Guilford, 5; Haywood, a few; Hyde, 2; Lincoln, 1; McDowell, 4; Macon, 4; Martin, 1; New Hanover, 3; Person; Rockingham; Rowan, 1; Union, 1; Wake, 1—17 counties.

DIPHTHERIA.—Alexander, 2; Brunswick, 3; Cabarrus, 3; Craven, 2; Guilford, 4; Halifax, 2; Lenoir, several; Martin, 1; Rockingham; Rowan, 1; Sampson, 2; Surry, 2—12 counties.

TYPHOID FEVER.—Alexander, 1; Beaufort, 2; Bladen, a few; Brunswick, 3; Chatham, a few; Clay, 1; Cleveland, a few; Columbus, many; Craven, 4; Cumberland, a few; Davidson, 4; Gates, 1; Hertford, 3; Lenoir, many; Lincoln, 3; McDowell, 1; Nash, 3; New Hanover, 3; Onslow, 2; Polk, 1; Randolph, a few; Richmond, a few; Robeson, a few; Rockingham, a few; Scotland, 1; Stanly, Union, 10; Wake, 6; Watanya, a few; Wayne, several; Wilkes, 1—31 counties.

MALARIAL FEVER.—Camden, Cumberland, Edgecombe, Gates, Martin, Onslow, Pender, Wake—8 counties.

MALARIAL FEVER, PERNICIOUS.—Edgecombe, 1.

MALARIAL FEVER, HEMORRHAGIC.—Gates, 1; Martin, 1; Onslow, 2; Wake 1.

INFLUENZA.—Brunswick, Caswell, Currituck, Halifax, Hertford, Lenoir, Martin, Orange, Randolph, Stokes, Wake, Wayne—12 counties.

MUMPS.—Cleveland; Dare; Hyde, in all parts; Pamlico, in all parts; Polk, in all parts; Transylvania, a few—6 counties.

PNEUMONIA.—Alexander; Alleghany; Caswell; Catawba; Cumberland, a few; Franklin, a few; Gaston, a few; Graham; Halifax; Hertford; Lenoir; Moore; Orange, in all parts; Pender, a few; Person, a few; Randolph, in many parts; Robeson; Wake, in all parts; Wayne; Yadkin, in many parts—20 counties.

VARICELLA.—Caswell; Cumberland, many; Jones, several.

SMALL-POX.—(In January) Anson, 3; Buncombe, 254; Burke, 75; Catawba, 9; Cleveland, 15; Craven, 34; Currituck, 6; Durham, 1; Forsyth, 50; Granville, 18; Greene, 1; Guilford, 59; Henderson, 2; Iredell, 13; Jones, 4;

Lincoln, 29; McDowell, 40; Madison, 25; Mecklenburg, 59; Onslow, 50 since the middle of November; Polk, 18; Rowan, 27; Rutherford, 12; Sampson, 26; Stanly, 10; Stokes, 5; Surry, 42; Swain, 25; Union, 20; Yadkin, 1; Yancey, 2 or 3—31 counties.

CHOLERA, IN HOGS.—Chowan, Martin.

STAGGERS, IN HORSES.—Chatham, Columbus, Cumberland, Sampson, Scotland, Union.

No diseases reported from Alexander, Carteret, Davie, Duplin, Johnston, Pasquotank, Pitt, Warren and Wilson.

No reports received from Cherokee, Harnett, Jackson, Mitchell, Montgomery, Northampton, Perquimans and Vance.

Summary of Mortuary Report for January, 1903.

(TWENTY-SIX TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	83,250	58,850	142,100
Aggregate deaths..	85	93	178
Representing temporary annual death rate per 1,000	12.2	18.9	15.0
<i>Causes of Death.</i>			
Typhoid fever.....	5	0	5
Scarlet fever.....	1	0	1
Malarial fever.....	2	0	2
Diphtheria	3	0	3
Whooping-cough..	1	0	1
Pneumonia.....	11	21	32
Consumption .. .	8	12	20
Brain diseases.....	9	3	12
Heart diseases.....	7	6	13
Neurotic diseases...	1	1	2
Diarrhoeal diseases	2	3	5
All other diseases..	30	43	73
Accident	5	4	9
	85	93	178
Deaths under five years.....	16	23	39
Still-born....	3	6	9

Mortuary Report for January, 1903.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.	By Diseases.												TOTAL DEATHS, BY TOWNS, AND REPORTERS.
			By RACES.			Total.			By RACES.			Total.			
Charlotte{ W. 11,000	14.2	18,200	W.	16.5	Typhoid Fever.	C.	16.5	Scarlet Fever.	W.	1	Measles.	C.	1	1	13
Dr. F. O. Hawley. { C. 7,200	20.0	20.0								1	Pneumonia.		2	1	25
Durham{ W. 8,000	13.5	13,000	W.	15.7	Malaria Fever.	C.	15.7	Malaria Fever.	W.	1	Consumption.	C.	1	1	25
Dr. N. M. Johnson. { C. 5,000	19.2	19.2								1	Brain Diseases.		4	1	4
Edenton{ W. 1,200	20.0	3,000	W.	20.0	Whooping-cough.	C.	20.0	Diphtheria.	W.	1	Heart Diseases.	C.	1	1	5
Dr. T. J. Hoskins. { C. 1,800	20.0	20.0								1	Neurotic Diseases.		2	1	2
Fayetteville{ W. 2,500	0.0	4,800	W.	2.5	Measles.	C.	2.5	Measles.	W.	1	Diarrheal Diseases.	C.	1	1	1
Dr. John D. MacRae. { C. 2,300	5.6	5.6								1	All Other Diseases.		1	1	1
Goldsboro{ W. 3,500	0.0	6,100	W.	11.8	Pneumonia.	C.	11.8	Measles.	W.	1	Accident.	C.	1	1	1
Geo. E. Hood, Mayor. { C. 2,600	27.7	27.7								1	Violence.		2	1	2
Greensboro{ W. 6,100	2.0	10,100	W.	11.9	Scarlet Fever.	C.	11.9	Scarlet Fever.	W.	1	Diarrheal Diseases.	C.	1	1	1
Jno. S. Michaux, C.C. { C. 4,000	27.2	27.2								1	All Other Diseases.		1	1	1
Henderson{ W. 2,100	17.1	3,800	W.	12.6	Consumption.	C.	12.6	Consumption.	W.	1	Accident.	C.	1	1	1
Dr. F. R. Harris. { C. 1,700	7.1	7.1								1	Violence.		3	4	4
Laurinburg{ W. 900	40.0	1,500	W.	32.0	Measles.	C.	32.0	Measles.	W.	1	Diarrheal Diseases.	C.	1	1	1
Dr. A. W. Hamer. { C. 600	20.0	20.0								1	All Other Diseases.		3	4	2
Lenoir{ W. 1,200	10.0	1,500	W.	8.0*	Pneumonia.	C.	8.0*	Pneumonia.	W.	1	Accident.	C.	1	1	1
Dr. A. A. Kent. { C. 300	0.0	0.0								1	Violence.		0	1	1
Lexington{ W. 800	0.0	1,300	W.	0.0	Scarlet Fever.	C.	0.0	Scarlet Fever.	W.	1	Diarrheal Diseases.	C.	1	0	0
J. H. Moyer, Mayor. { C. 500	0.0	0.0								1	All Other Diseases.		0	0	0
Marion{ W. 800	45.0	1,200	W.	30.0	Measles.	C.	30.0	Measles.	W.	1	Accident.	C.	1	3	3
Dr. B. A. Cheek. { C. 400	0.0	0.0								1	Violence.		0	3	3
Monroe{ W. 1,850	0.0	2,150	W.	4.9	Pneumonia.	C.	4.9	Pneumonia.	W.	1	Diarrheal Diseases.	C.	1	1	1
Dr. J. M. Blair. { C. 600	20.0	20.0								1	All Other Diseases.		1	1	1
Oxford{ W. 1,200	0.0	2,300	W.	10.4	Measles.	C.	10.4	Measles.	W.	1	Accident.	C.	1	0	0
Dr. S. P. Booth. { C. 1,100	21.8	21.8								1	Violence.		2	2	1
Raleigh{ W. 8,000	22.5	13,800	W.	20.0	Measles.	C.	20.0	Measles.	W.	1	Diarrheal Diseases.	C.	1	23	1
T. P. Sale, Clerk B. H. { C. 5,800	16.5	16.5								1	All Other Diseases.		8	3	1
Reidsville{ W. 2,900	0.0	4,200	W.	5.7	Pneumonia.	C.	5.7	Pneumonia.	W.	1	Accident.	C.	1	0	0
Jas. T. Smith, C. C. { C. 1,300	18.5	18.5								1	Violence.		2	2	2
Rocky Mount{ W. 1,600	7.5	3,100	W.	3.9	Scarlet Fever.	C.	3.9	Scarlet Fever.	W.	1	Diarrheal Diseases.	C.	1	1	1
Dr. G. L. Wimberley, Jr. { C. 1,500	0.0	0.0								1	All Other Diseases.		0	0	0
Salem{ W. 3,300	3.7	3,650	W.	6.6	Measles.	C.	6.6	Measles.	W.	1	Accident.	C.	1	2	1
F. E. Keehln, Supt. H. { C. 350	31.3	31.3								1	Violence.		1	1	1
Salisbury{ W. 3,000	27.7	6,400	W.	20.6	Measles.	C.	20.6	Measles.	W.	3	Scarlet Fever.	C.	2	11	2
Dr. W. W. McKenzie. { C. 2,500	9.6	9.6								1	Measles.		2	2	2
Southport{ W. 900	26.4	1,400	W.	25.7	Measles.	C.	25.7	Measles.	W.	1	Scarlet Fever.	C.	1	2	3
Dr. D. I. Watson. { C. 500	21.0	21.0								1	Measles.		1	1	1
Tarboro{ W. 2,000	0.0	2,500	W.	14.1	Measles.	C.	14.1	Measles.	W.	1	Scarlet Fever.	C.	1	0	3
Dr. Wm. J. Thigpen. { C. 500	72.0	72.0								1	Measles.		3	1	1
Wadesboro{ W. 1,000	21.0	1,700	W.	11.1	Measles.	C.	11.1	Measles.	W.	1	Scarlet Fever.	C.	1	2	2
Dr. J. H. Bennett. { C. 700	60.0	60.0								1	Measles.		2	2	2
Washington{ W. 3,000	8.0	5,500	W.	8.7	Measles.	C.	8.7	Measles.	W.	1	Scarlet Fever.	C.	1	2	4
Dr. Jno. G. Blount. { C. 2,500	9.6	9.6								1	Measles.		2	4	4
Waynesville{ W. 1,000	21.0	1,300	W.	18.5	Measles.	C.	18.5	Measles.	W.	1	Scarlet Fever.	C.	1	2	2
T. Stringfield, Mayor. { C. 300	0.0	0.0								1	Measles.		0	0	0
Weldon{ W. 700	0.0	1,500	W.	32.0	Measles.	C.	32.0	Measles.	W.	1	Scarlet Fever.	C.	1	0	4
J. T. Goode, Mayor. { C. 800	60.0	60.0								1	Measles.		3	4	4
Wilmington{ W. 10,000	15.6	21,000	W.	18.8	Measles.	C.	18.8	Measles.	W.	1	Scarlet Fever.	C.	1	33	5
Dr. Chas. T. Harper. { C. 11,000	21.8	21.8								2	Measles.		20	5	2
Wilson{ W. 3,800	9.5	6,800	W.	15.9	Measles.	C.	15.9	Measles.	W.	2	Scarlet Fever.	C.	2	9	9
Dr. W. S. Anderson. { C. 3,000	21.0	21.0								1	Measles.		6	6	6

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. R. Moore.
Alexander	Dr. C. J. Carson.
Alleghany	Dr. Robt. Thompson.
Anson	Dr. J. H. Bennett.
Ashe.....	Dr. J. W. Colvard.
Beaufort	Dr. Jno. G. Blount.
Bertie	Dr. H. V. Dunstan.
Bladen.....	Dr. L. B. Evans.
Brunswick	Dr. J. A. McNeill.
Buncombe	Dr. E. B. Glenn.
Burke.....	Dr. J. L. Laxton.
Cabarrus	Dr. R. S. Young.
Caldwell	Dr. A. A. Kent.
Camden.....	Dr. J. L. Lister.
Carteret	Dr. F. M. Clark.
Caswell	Dr. S. A. Malloy.
Catawba	Dr. Geo. H. West.
Chatham.....	Dr. H. T. Chapin
Cherokee.....	Dr. Oscar Patton.
Chowan.....	Dr. T. J. Hoskins.
Clay	Dr. J. O. Nichols.
Cleveland	Dr. B. H. Palmer.
Columbus.....	Dr. I. Jackson.
Craven.....	Dr. N. H. Street.
Cumberland.....	Dr. Jno. D. McRae.
Currituck	Dr. H. M. Shaw.
Dare	Dr. W. B. Fearing.
Davidson	Dr. Joel Hill.
Davie.....	Dr. James McGuire.
Duplin	Dr. O. F. Smith.
Durham	Dr. N. M. Johnson.
Edgecombe	Dr. W. J. Thigpen.
Forsyth.....	Dr. John Bynum.
Franklin	Dr. E. S. Foster.
Gaston.....	Dr. J. H. Jenkins.
Gates.....	Dr. W. O. P. Lee.
Graham	Dr. R. J. Orr.
Granville	Dr. S. D. Booth.
Greene.....	Dr. C. S. Maxwell.
Guilford.....	Dr. Edmund Harrison.
Halifax	Dr. I. E. Green.
Harnett.....	Dr. O. L. Denning.
Haywood	Dr. S. B. Medford.
Henderson	Dr. J. G. Waldrop.
Hertford	Dr. J. H. Mitchell.
Hyde	Dr. E. H. Jones.
Iredell	Dr. M. R. Adams.
Jackson.....	Dr. R. L. Davis.
Johnston	Dr. L. D. Wharton.
Jones.....	Dr. S. E. Koonce.
Lenoir	Dr. C. L. Pridgen.
Lincoln	Dr. T. F. Costner.
McDowell	Dr. G. S. Kirby.
Macon	Dr. F. L. Siler.
Madison	Dr. Jas. K. Hardwicke.
Martin.....	Dr. W. H. Harrell.
Mecklenburg.....	Dr. C. S. McLaughlin.
Mitchell.....	Dr. V. R. Butt.
Montgomery	Dr. M. P. Blair.
Moore.....	Dr. Gilbert McLeod.
Nash	Dr. J. P. Battle.
New Hanover	Dr. W. D. McMillan.
Northampton.....	Dr. H. W. Lewis.
Onslow.....	Dr. E. L. Cox.
Orange.....	Dr. D. C. Parris.
Pamlico.....	Dr. H. P. Underhill.
Pasquotank	Dr. J. E. Wood.
Pender.....	Dr. R. J. Williams.
Perquimans.....	Dr. C. C. Winslow.
Person	Dr. J. A. Wise.
Pitt.....	Dr. C. O'H. Laughing house.
Polk	Dr. Earle Grady.
Randolph	Dr. S. A. Henley.
Richmond.....	Dr. F. J. Garrett.
Robeson	Dr. H. T. Pope.
Rockingham	Dr. Sam Ellington.
Rowan.....	Dr. W. L. Crump.
Rutherford.....	Dr. T. B. Twitty.
Sampson	Dr. R. E. Lee.
Scotland	Dr. A. W. Hamer.
Stanly.....	Dr. V. A. Whitley.
Stokes	Dr. W. V. McCanless.
Surry	Dr. John R. Woltz.
Swain.....	Dr. A. M. Bennet.
Transylvania	Dr. C. W. Hunt.
Tyrrell.....	
Union	Dr. John M. Blair.
Vance.....	Dr. H. H. Bass.
Wake.....	Dr. J. J. L. McCullers.
Warren.....	Dr. E. M. Gayle.
Washington	Dr. W. H. Ward.
Watauga.....	Dr. T. C. Blackburn.
Wayne.....	Dr. Williams Spicer.
Wilkes.....	Dr. W. P. Horton.
Wilson.....	Dr. W. S. Anderson.
Yadkin	Dr. M. A. Royall.
Yancey	Dr. J. L. Ray.

AN ACT TO PROTECT WATER SUPPLIES.**BULLETIN**

OF THE

North Carolina Board of Health.*Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.*

GEO. G. THOMAS, M. D., Pres., Wilmington.

S. WESTRAY BATTLE, M. D...Asheville.

HENRY W. LEWIS, M. D.....Jackson.

J. L. NICHOLSON, M. D.....Richlands.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

W. P. IVEY, M. D.....Lenoir.

FRANCIS DUFFY, M. D.....New Bern.

W. H. WHITEHEAD, M. D.....Rocky Mt.

J. L. LUDLOW, C. E.....Winston.

VOL. XVII.

MARCH, 1903.

No. 12.

Recent Legislation.

The General Assembly that has just adjourned passed three laws of value to the cause of health and medicine in general. They were entitled "An act to Protect Water Supplies," "An Act to Provide for the Registration of Nurses in North Carolina," and "An Act to Define the Practice of Medicine and Surgery." This last was amended so as not to include Christian Scientists, but it puts all other quacks under the control of the Board of Medical Examiners, osteopaths being required to stand an examination on practically everything except pharmacy, *materia medica* and therapeutics. In our next issue we will reprint our medical license laws as amended to date, but must give the right of way now to the act to protect water supplies, as that should go into effect as soon as possible. An act with the same title was passed two

years ago, but this is a great improvement on that, and makes the position of North Carolina in the first class, assigned her in the report of the Committee on Water Legislation at the Buffalo meeting of the American Public Health Association, still more secure. The following is the act:

AN ACT TO PROTECT WATER SUPPLIES.

*The General Assembly of
North Carolina do enact:*

SECTION 1. In the interest of the public health every person, company, municipal corporation or agency thereof selling water to the public for drinking and household purposes, shall take every reasonable precaution to protect from contamination and assure the healthfulness of such water; and any provisions in any charters heretofore granted to such persons, companies or municipal corporations in conflict with the provisions of this act are hereby repealed.

SEC. 2. Such water-works as derive their supply from lakes or ponds or from small streams not more than fifteen miles in length shall have made a sanitary inspection of the entire water-shed not less, under any circumstances, than once every three calendar months, and a sanitary inspection of any particular locality on said water-shed at least once in each calendar month, whenever in the opinion of the board of health of the city or town to which the water is supplied, or when there is no such local board of health, in the opinion of the county superintendent of health, or in the opinion of the State Board of Health, there is reason to apprehend the infection of the water in that particular locality. Said companies or municipal corporations shall cause to be made a sanitary inspection of any particular locality on said water-shed at least once in each week, whenever in the opinion of the board of health of the city or town to which the water is supplied, or when there is no such local board of health, in the opinion of the county superintendent of health, or in the opinion of the State Board of Health, there is special reason to apprehend the infection of the water from that particular locality by the germs of typhoid fever or cholera. The inspection of the entire water-shed as herein provided for shall include a particular examination of the premises of every inhabited house on the water-shed, and in passing from house to house a general inspection for dead bodies of animals or accumulations of filth. It is not intended that the term "entire water-shed" shall include uninhabited fields and wooded tracts that are free from suspicion. The inspec-

tion shall be made by an employee of, and at the expense of, said water company or municipal corporation, in accordance with reasonable instructions as to method, to be furnished by the Secretary of the State Board of Health. The said sanitary inspector shall give in person to the head of each household on said water-shed, or in his absence to some member of said household, the necessary directions for the proper sanitary care of his premises. It shall further be the duty of said inspector to deliver to each family residing on the water-shed such literature on pertinent sanitary subjects as may be supplied him by the municipal health officer, or by the Secretary of the State Board of Health.

SEC. 3. In case of those companies obtaining their supply of water from rivers or large creeks, having a minimum daily flow of ten million gallons, the provisions of section 2 shall be applied to the 15 miles of water-shed draining into the said river or creek next above the intake of the water-works.

SEC. 4. Every water company, whether owned by private individuals or corporations, or by the municipality, shall have made, not less frequently than once in every three months, at its own expense, by the chemist of the State Board of Health, or such chemist as the said board may designate, a chemical analysis; and once every month at its own expense by the Biologist of the State Board of Health or such biologist as said board may designate, a bacteriological examination of a sample of its water drawn from a faucet used for drinking purposes, packed and shipped in accordance with the instructions to

be furnished by the Secretary of the State Board of Health: *Provided*, that when the supply is from a flowing artesian well said analysis shall be made in the discretion of the Secretary of the State Board of Health.

SEC. 5. Failure on the part of any water company to comply with the requirements of sections 2, 3 and 4 shall be punished by a deduction from any charges for water against the city or town supplied, of twenty-five dollars for each and every such failure: *Provided*, that in no one year shall the sum of such forfeitures exceed five hundred dollars. Where the water-works are owned or operated by the city or town, failure on the part of the municipal official having in charge the management of the water-works, to comply as above, shall be a misdemeanor, and punishable by a fine of not less than ten nor more than twenty-five dollars, or by imprisonment for not less than ten nor more than thirty days: *Provided further*, the said official does not prove to the satisfaction of the court that in spite of reasonable effort and diligence on his part he was prevented, directly or indirectly, by his superiors from doing his duty in this respect, in which case said superior officer or officers shall be deemed guilty of a misdemeanor, and punished by a fine of not less than fifty nor more than two hundred dollars, or by imprisonment for not less than one nor more than six months.

SEC. 6. Every city or town having a public water supply shall, at its own expense, have made at least once in every three months by one of its own officials a sanitary inspection of the entire watershed of its water supply, and it shall be the duty of the said official making

such inspection to report to the mayor any violation of this act.

SEC. 7. Every person, firm or corporation residing or owning property on the water-shed of a lake, pond or stream from which a public drinking supply is obtained, shall carry out such reasonable instructions as may be furnished him in the manner set forth in section 2, or directly by the municipal health officer, or by the State Board of Health. Failure to do so shall be deemed a misdemeanor, and shall be punishable by a fine of not less than two dollars and costs nor more than twenty-five dollars and costs, or by imprisonment for not less than ten nor more than thirty days.

SEC. 8. The mayor of each city or town having a public water supply shall have concurrent jurisdiction with any justice of the peace to hear and determine all violations of this act: *Provided*, such violation is within the jurisdiction of the justice of the peace.

SEC. 9. As a check and guarantee of the faithful performance of the requirements laid down in the preceding sections of this act, the State Board of Health shall make or have made by its authorized agents such inspections of water-sheds and such chemical and bacteriological examinations of the public water supplies of the State as may be deemed necessary to insure their purity. Should this inspection or examination show conditions dangerous to the public health, the Secretary of the said State Board of Health shall notify the mayor, the municipal health officer and the superintendent or manager of the water-works at fault, and demand the immediate removal of said dangerous conditions. If at the end of thirty days after the service of said notice and

demand, the said dangerous conditions have not been removed, to the extent that due diligence could accomplish such removal, the said Secretary shall have printed in one or more of the local newspapers a plain statement of the facts for the information and protection of the citizens using the water.

SEC. 10. Each sanitary inspector herein provided for is hereby authorized and empowered to enter upon any premises and into any building upon his respective water-shed for the purpose of making the inspections herein required.

SEC. 11. Whoever defiles, corrupts, pollutes any well, spring, drain, branch, brook or creek, or other source of public water supply used for drinking purposes, in any manner, or deposits the body of any dead animal on the watershed of any such water supply, or allows the same to remain thereon unless the same is buried with at least two feet cover, shall be guilty of a misdemeanor, and fined and imprisoned in the discretion of the court.

SEC. 12. Whoever shall collect and deposit human *excreta* on the water-shed of any public water supply shall be guilty of a misdemeanor, and punished by fine and imprisonment in the discretion of the court.

SEC. 13. No person, firm, corporation or municipality shall flow or discharge sewage into any drain, brook, creek or river from which a public drinking water supply is taken, unless the same shall have been passed through some well known system of sewage purification approved by the State Board of Health. Any person, firm, corporation or the officer of any municipality having this work in charge, who shall violate this section shall be guilty of a misde-

meanor, and the continued flow and discharge of such sewage may be enjoined by any person.

SEC. 14. That all schools, hamlets, villages, towns or industrial settlements which are now located, or may be hereafter located on the shed of any public water supply, not provided with a sewerage system, shall provide and maintain a tub system for collecting human excrement, and provide for the removal of the same from the water-shed at least twice each week. Every person, firm, corporation or municipality violating this section shall be guilty of a misdemeanor, and fined or imprisoned in the discretion of the court.

SEC. 15. No burying-ground or cemetery shall be established on the watershed of any public water supply nearer than five hundred yards of the source of supply.

SEC. 16. All water companies now organized under the State laws, which may maintain public water supplies may acquire, by condemnation, such lands and rights in land and water as are necessary for the successful operation and protection of their plants, said proceedings to be the same as prescribed by chapter 49, section 1 of The Code of North Carolina.

SEC. 17. For carrying out the provisions of this act the State Board of Health is authorized and empowered to have the bacteriological examinations made as hereinbefore provided for, and to charge for the same the sum of five dollars (\$5) for each examination.

SEC. 18. All laws and parts of laws in conflict with this act are hereby repealed.

SEC. 19. That this act shall be in force from and after its ratification.

Review of Diseases for February, 1902.

EIGHTY-FIVE COUNTIES REPORTING.

Ninety-six counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

MEASLES.—Caldwell, 100 cases; Craven, 8; Granville, 4; Guilford, 2; Iredell, 12; McDowell, 2; Mecklenburg; Polk, 1; Rockingham; Stokes, 10; Surry, 50; Transylvania, 1; Washington, many; Yancey, several—14 counties.

WHOOPING-COUGH.—Beaufort, 2; Bladen, a great many; Cabarrus, 12; Caswell, several; Chowan, several; Cleveland, a few; Duplin, several; Gates; Haywood, a few; Hertford, 1; Lincoln, 2; McDowell, 5; Meeklenburg; Macon, a few; Pender, a few; Perquimans, 12; Richmond, a few; Rockingham; Sampson, a few; Union, 20—20 counties.

SCARLATINA.—Granville, 2; Lincoln, 2; Meeklenburg; New Hanover, 3; Rockingham, a few; Rutherford, 1; Stanly; Vance, 1—8 counties.

DIPHTHERIA.—Brunswick, 2; Cleveland, 3; Craven, 2; Meeklenburg; Surry, 1.

TYPHOID FEVER.—Beaufort, 2; Bladen, 1; Caldwell, 1; Camden, 1; Caswell, 1;

Chatham, several; Cherokee, 5; Clay, a few; Columbus, 2; Craven, 3; Cumberland, a few; Gaston, 1; Gates, 11; Hertford, 5; Iredell, 3; Lenoir, a few; McDowell, 1; Martin, 2; Nash, 2; New Hanover, 1; Pender, 1; Polk, 1; Richmond, 10 or 15; Rockingham; Stanly; Vance, 2; Wilkes, 2—27 counties.

MALARIAL FEVER.—Caswell; Currituck; Edgecombe; Gates; Person; Randolph; Sampson—7 counties.

MALARIAL FEVER, PERNICIOUS.—Edgecombe; Gates, 1; Randolph, 3.

MALARIAL FEVER, HEMORRHAGIC.—Person, 1.

DYSENTERY.—Greene.

INFLUENZA.—Ashe; Bertie, in many parts; Brunswick; Chatham; Columbus, general; Currituck, in many parts; Edgecombe; Graham, general; Henderson; Jackson, a few; Lenoir, general; Martin, mild, general; Person; Randolph, in most parts; Richmond; Robeson; Scotland; Stokes, in most parts; Vance, general; Wake, general; Washington, mild, general; Wilkes—22 counties.

MUMPS.—Caswell; Cleveland, in many parts; Currituck, in many parts; Dare; Hyde, general; Person; Yancey—7 counties.

PNEUMONIA.—Alleghany, in all parts; Ashe; Caswell; Edgecombe; Gaston, several; Gates, 3; Graham, in all parts; Henderson, 2; Iredell, in all parts; Lenoir, in all parts; Moore, in all parts; Perquimans, a few; Person; Randolph, in most parts; Richmond; Robeson; Scotland; Wake, in all parts—18 counties.

VARICELLA.—Sampson.

SMALL-POX.—Burke, 105; Caldwell, 20, among negroes in King's Creek township; Camden, 1; Catawba, 18; Cleveland, 3; Craven, 38; Currituck, 1; Da-

vidson, 2; Durham, 19; Forsyth, 75; Gaston, a few; Granville, 60; Greene, 1; Guilford, 28; Haywood, 2; Henderson, 33; Iredell, 10; Jones, 3; Lincoln, 10; McDowell, 25; Madison, 6; Mecklenburg, 17; New Hanover, 1; Polk, 41, only one case at end of month; Richmond, 1; Rockingham, 21; Rutherford, 20; Sampson, 30 or 35; Stanly; Stokes, 25; Surry, 6; Swain, a few; Union, 10; Vance, 12; Wilkes, 10—35 counties.

CHOLERA, IN CHICKENS.—Cleveland, Gates.

CHOLERA, IN HOGS.—Martin, Wayne.

GLANDERS, IN DOMESTIC ANIMALS.—

Union.

HYDROPHOBIA, IN DOGS.—Richmond.

STAGGERS, IN HORSES.—Columbus.

No diseases reported from Anson, Carteret, Davie, Franklin, Johnston, Macon, Northampton, Orange, Pasquotank, Warren, Wayne, Wilson and Yadkin.

No reports received from Alexander, Buncombe, Halifax, Harnett, Mitchell, Montgomery, Onslow, Pamlico, Pitt, Rowan and Watauga.

**Summary of Mortuary Report for
February, 1903.**

(TWENTY-SIX TOWNS).

	White.	Col'd.	Total.
Aggregate population.....	83,250	58,850	142,100
Aggregate deaths..	85	91	176
Representing temporary annual death rate per 1,000.....	12.2	18.5	14.9

Causes of Death.

Typhoid fever	2	1	3
Malarial fever.....	1	1	2
Whooping-cough..	1	0	1
Measles	2	0	2
Pneumonia.....	8	19	27
Consumption.....	7	18	25
Brain diseases.....	6	4	10
Heart diseases.....	4	5	9
Neurotic diseases...	3	3	6
All other diseases..	48	36	84
Accident	2	2	4
Suicide	0	1	1
Violence	1	1	2
	85	91	176
Deaths under five years.....	17	25	42
Still-born....	4	12	16

Mortuary Report for February, 1903.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Deaths.	Deaths under five years.	Still-born.	
		RACES.	Total.	By Races.	Total.																				
Charlotte	{ W. 11,000	18,200	12.0	12.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. F. O. Hawley.	{ C. 7,200	13.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Durham	{ W. 8,000	13,000	16.5	23.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. N. M. Johnson.	{ C. 5,000	33.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Edenton	{ W. 1,200	3,000	0.0	12.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. T. J. Hoskins.	{ C. 1,800	20.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fayetteville	{ W. 2,500	4,800	9.6	7.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. John D. MacRae.	{ C. 2,300	5.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Goldsboro	{ W. 3,500	6,100	6.8	11.8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Geo. E. Hood, Mayor.	{ C. 2,600	18.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greensboro	{ W. 6,100	10,100	5.9	13.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jno. S. Michaux, C. C.	{ C. 4,000	24.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Henderson	{ W. 2,100	3,800	11.4	12.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. F. R. Harris.	{ C. 1,700	14.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Laurinburg	{ W. 900	1,500	0.0	16.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. A. W. Hamner.	{ C. 600	40.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lenoir	{ W. 1,200	1,500	20.0	16.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. A. A. Kent.	{ C. 300	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lexington	{ W. 800	1,300	0.0	17.7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
J. H. Moyer, Mayor.	{ C. 500	24.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Marton	{ W. 800	1,200	30.0	20.0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Guy S. Kirby	{ C. 400	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Monroe	{ W. 1,850	2,450	13.0	9.8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. J. M. Blair.	{ C. 600	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oxford	{ W. 1,200	2,300	10.0	10.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. S. D. Booth.	{ C. 1,100	10.9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Raleigh	{ W. 8,000	13,800	12.0	16.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
T. P. Sale, Clerk B. H.	{ C. 5,800	22.7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Reidsville	{ W. 2,900	4,200	29.7	31.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jas. T. Smith, C. C.	{ C. 1,300	55.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rocky Mount	{ W. 1,000	3,100	15.0	16.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. G. L. Wimberley, Jr.	{ C. 1,500	8.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salem	{ W. 3,300	3,650	21.8	29.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
F. E. Keehn, Supt. H.	{ C. 350	102.8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salisbury	{ W. 3,000	6,400	3.1	9.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. W. W. McKenzie.	{ C. 2,500	19.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Southport	{ W. 900	1,400	40.0	25.7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. D. I. Watson.	{ C. 500	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tarboro	{ W. 2,000	2,500	12.0	11.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Wm. J. Thigpen.	{ C. 500	24.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wadesboro	{ W. 1,000	1,700	0.0	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. J. H. Bennett.	{ C. 700	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Washington	{ W. 3,000	5,500	12.0	8.7	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Jno. G. Blount.	{ C. 2,500	4.8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waynesville	{ W. 1,000	1,300	21.0	18.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
T. Stringfield, Mayor.	{ C. 300	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Weldon	{ W. 700	1,500	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
J. T. Goode, Mayor.	{ C. 800	15.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wilmingtton	{ W. 10,000	21,000	12.0	14.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Chas. T. Harper.	{ C. 11,000	16.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wilson	{ W. 3,800	6,800	15.8	15.9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. W. S. Anderson.	{ C. 3,000	16.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. S. E. Koonce.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. T. F. Costner.
Anson	Dr. J. H. Bennett.	McDowell	Dr. G. S. Kirby.
Ashe.....	Dr. J. W. Colvard.	Macon	Dr. F. L. Siler.
Beaufort	Dr. Jno. G. Blount.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. A. McNeill.	Mitchell	Dr. V. R. Butt.
Buncombe	Dr. E. B. Glenn.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. A. Kent.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. J. L. Lister.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. D. C. Parris.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. H. T. Chapin	Pasquotank	Dr. J. E. Wood.
Cherokee.....	Dr. Oscar Patton.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. O. Nichols.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. C. O'H. Laughinghouse.
Columbus.....	Dr. I. Jackson.	Polk	Dr. Earle Grady.
Craven.....	Dr. N. H. Street.	Randolph	Dr. S. A. Henley.
Cumberland.....	Dr. Jno. D. McRae.	Richmond.....	Dr. F. J. Garrett.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson.....	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie.....	Dr. James McGuire.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. O. F. Smith.	Sampson	Dr. R. E. Lee.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. W. J. Thigpen.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. V. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Waltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. A. M. Bennet.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. C. S. Maxwell.	Vance.....	Dr. H. H. Bass.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. E. M. Gayle.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. S. B. Medford.	Watauga.....	Dr. T. C. Blackburn.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. J. H. Mitchell.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. L. D. Wharton.		

